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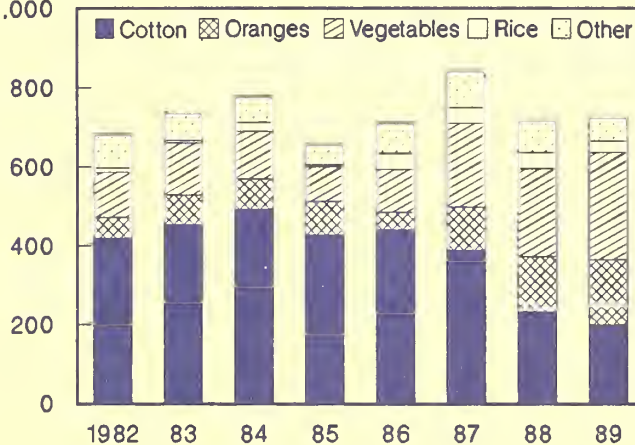
World Agriculture

Situation and Outlook Report

High-Value Exports

Egyptian Agricultural Exports

Million dollars
1,000



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Note: Tons are metric, dollars are U.S., and rice is on a milled basis unless otherwise specified.

Summary

Economic growth rates will stabilize at just under 3 percent in industrial countries, while the developing country (LDC) economies will begin to grow at around 5 percent next calendar year. World trade will continue to outpace gross domestic product (GDP) growth despite persistent trade deficits in Africa, Eastern Europe, and many industrial countries, notably the United States.

The dollar may weaken in the next few months as U.S. economic growth moderates, inflation eases, and short-term interest rates decline.

In fiscal 1990, U.S. agricultural export value is forecast to drop to \$38 billion, down \$1.7 billion from fiscal 1989 exports, which were the highest since 1981. Lower prices for most grains and oilseeds largely account for what is expected to be the first decline in export value since fiscal 1986. Export volume is forecast to remain near its fiscal 1989 level, because a substantial decline in wheat exports is partially offset by gains in corn, soybeans, cotton, and high-value products (HVP's).

The value of U.S. agricultural imports is forecast to drop to \$21 billion, \$500 million below fiscal 1989's record high. The U.S. agricultural trade surplus is expected to total \$17 billion.

Participants in the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) were to submit proposals to substantially reduce agricultural support protection by December. Discussions since the conclusion of the Mid-Term Review in April have explored such ideas as the strengthening of GATT rules and disciplines, aggregate measures of support, conversion of nontariff restrictions to tariff measures, and sanitary and phytosanitary regulations. Special and differential treatment for LDC's and nontrade concerns such as food security have also been raised.

In this issue of the *World Agriculture Situation and Outlook Report*, the first of several articles focusing on HVP's discusses difficulties in defining this category of products, which makes up a significant part of world agricultural trade. The

validity of the GATT assumptions that justify separating negotiations on tropical products from those on other agricultural products is examined in another article.

The European Community (EC), the world's largest HVP exporter, is a formidable competitor of the United States in HVP markets worldwide. During 1970-87, the EC successfully competed against the United States in a number of HVP markets, including those for dairy products, meat, and flour. Since 1985, the lower value of the dollar and policies under the 1985 Farm Bill have increased U.S. HVP exports.

Demand factors have been more important than supply in explaining the performance of a sample of 35 LDC's in major Organization for Economic Cooperation and Development markets for HVP's in 1970-87. However, a weakening of growth in import demand in the 1980's has made changes in competitiveness an increasingly important determinant of performance.

Simulation models for coffee, cocoa, and tea show that under certain conditions, such as low initial taxes on production, exporters stand to lose under current trade liberalization proposals. The position any particular country takes on liberalization in these markets requires detailed analysis of all factors involved.

The International Coffee Agreement, which has intermittently regulated world coffee trade since 1962, partially collapsed in October 1989. This issue examines the world coffee market in the absence of the previous quota system.

Scientific advances are allowing shrimp farmers to compete with ocean-harvested shrimp in world export markets. Attractive export earnings account for the rapid development of shrimp farming in many countries.

Egypt is diversifying its HVP exports and relying less on cotton. In particular, horticultural crops like oranges, potatoes, jasmine products, garlic, onions, melons, and green beans have become significant export items because they fill special market niches.

The World Economy And Exchange Rates

Economic activity in the industrialized countries will moderate next year to more sustainable levels, thereby reducing world inflation. Real gross national product (GNP) growth in North America will lag that of Japan and Western Europe in 1990, but match that of the European Community (EC) in 1991.

In contrast, economic activity in the developing countries (LDC's) will intensify as prices stabilize, particularly in countries with high debt-service ratios. If the forecast of a significant price-growth reduction in Latin America materializes, it will assist in its economic recovery next year, despite stubborn three-digit inflation rates in Brazil and Peru. GNP growth rates in LDC's as a group slowed this year, as they did in the developed sector. But unlike that sector, LDC economies will recover in 1990; as a group, their GNP growth should exceed that of developed regions.

A continuation of the impressive expansion of world trade from 1985 to 1988—53 percent in the industrial countries and 30 percent in LDC's, according to the International Monetary Fund (IMF)—is a primary force that will drive general economic growth in LDC's in the next few years. Real domestic investment should also boost LDC growth. As world inflation subsides—the result of lower growth in developed countries and steady petroleum and commodity prices—industrializing countries may be able to realize advantages in trading terms. Lower international interest rates should also speed economic restructuring and adjustment and promote capital investments. As trade liberalization becomes more widespread, the relative sizes of import and export sectors will expand.

The U.S. dollar's strength since 1988, despite a current account deficit averaging 2.5 percent of GNP, has recently been sapped by a weakening domestic economy and lower domestic interest rates. The dollar's lingering resilience can be attributed to the recently improved outlook for the U.S. trade deficit and inflation, plus its remaining 2-percentage-point interest-rate differential over the yen, which should continue to attract some of Japan's trade surplus funds into U.S. assets. Political and economic uncertainties in Eastern Europe will also keep the dollar from losing more ground to the deutschemark, which is rebounding on the strength of West Germany's economy.

World Economic Activity

Slower Growth in Developed Countries and Faster Growth in LDC's

The industrialized countries will settle down to moderate rates of growth of just under 3 percent, while the LDC's will grow at around 5 percent starting next year. World trade will continue to outpace gross domestic product (GDP) growth despite persistent trade deficits in Africa, Eastern Europe, and many industrial countries, especially the United States.

The Pacific Asian region is the world's fastest growing trade area, and its continuing expansion is caused by dynamic international trade, particularly with Japan. The slowing of economic growth the developed nations will experience next year will be balanced by expansion of output and trade in LDC's, especially in Asia.

The expansion of Asia's import demand will continue to fuel export growth in other developing regions. Latin America's share of world trade fell from 6 percent in 1982 to 3 percent in 1989, and is expected to remain at that level in the next few years. Latin America will show a trade surplus with the rest of the world again next year as it continues to use export earnings to service its debts. Among LDC's, Africa and the Middle East have the lowest GNP and trade growth forecasts, approaching rates in the developed sector.

More Bank Lending Sought To Relieve Debt-Burdened Countries

U.S. Treasury Secretary Nicholas Brady's plan to ease LDC private debt obligations through repayment reductions has so far produced scant results. Creditor banks have shown little enthusiasm for writing down debts to their trading values in secondary loan markets. In recent agreements with the Philippines and Venezuela, creditors are increasing amounts they lend rather than cutting outstanding credits. It also appears that commercial banks have made only small concessions to Mexico, and it may require additional loans to reduce its repayment outflow.

Given the remote chance that the IMF or governments will grant guarantees for LDC loan repayments, creditor banks may be taking a wait-and-see attitude about world macro-economic and trade conditions. Lower international interest rates projected for 1990 will reduce interest payments and thus net transfer of funds. Greater domestic and trade expansion in LDC's next year will likely lower repayments in proportion to GNP or export earnings. Unless a good portion of its external debt is written off, Africa's prospects for growth will not be as bright as those of other developing regions.

Nations Increasingly Depend On Trade for Economic Growth

The United States has regained and should maintain the largest market share (14 percent) of world nonoil exports, at least through 1990. West Germany and Japan hold the next two largest shares (13 and 11 percent), and the four newly industrialized Asian economies (South Korea, Taiwan, Hong Kong, and Singapore) hold 10 percent of the market. The impressive rise of the United States from a 12-percent share and West Germany's decline from its 14-percent share 2 years ago are the result primarily of the dollar's lower exchange value.

As has been the case since 1987, Asian countries, including China, will continue to lead in export growth through 1991. The developed countries, including the United States, will not be far behind despite their slower expansion of real domestic production. No substantial changes are expected in the current account deficits of the United States and other industrial countries, nor in the current account surpluses of Japan and West Germany in 1990. Latin America's trade surplus in the next 2 years should not diverge significantly from its current \$27 billion. Asia's demand for imports will roughly equal its exports this year and in the next 2 years.

The LDC share of world trade fell from 31.5 percent in 1982 to 26.5 percent in 1988. However, slackened growth in the developed sector and a robust outlook in LDC's next year may help them to recapture their former share of world trade. An outlook for stabilized energy and commodity prices suggests industrializing countries and other LDC's may obtain advantages in trade terms.

Oil Prices Stabilize

World crude oil prices appear to have stabilized in the past few weeks at about \$17 per barrel. Despite a gradual rise from \$15.50 last August, the current price is still 9 percent below last April's \$19 per barrel; however, it is a full 70 percent higher than the \$10 level of only 1 year ago. The Organization of Petroleum Exporting Countries' (OPEC's) professed target of \$18 per barrel has been elusive because recent production has consistently approached or exceeded 23 million barrels per day, openly disregarding the output goal of 20.5 million barrels per day.

By early 1990, oil prices are expected to decline somewhat, provided North Sea operations return to normal after mishaps in early 1989 and some OPEC nations continue to exceed their production quotas. The seasonal lower demand in the first quarter, when consuming countries customarily draw down stocks built up in the previous fourth quarter, should likewise keep oil prices below \$18 per barrel. This set of circumstances would extend oil prices' negative real growth for the second year in a row.

The average world price projected for 1990 is unchanged from 1989—\$17.50 per barrel. Total U.S. oil production next year will fall an average of 200,000-300,000 barrels per day, and should be supplanted by increased production in other non-OPEC producers. The increasing reliance of the United States on imported oil makes it more difficult to achieve a trade balance.

Dollar Exchange Rates

The dollar will likely continue soft over the next few months. As the U.S. economy cools and as inflationary pressures decline, short-term interest rates should move down further. The Federal Reserve Board will perceive less risk in supplying more bank reserves to lower interest rates further and keep the economy from sliding even more. Lower interest rates would benefit the U.S. Treasury in its financing of the budget deficit; a depreciated dollar would make imports more expensive relative to exports.

The U.S. trade balance for nonoil merchandise has improved steadily since 1986, when the dollar's foreign exchange value started its downward trend from the decade's 1985 high. However, the trade and current account balances remain negative. While the dollar rebounded 12 percent, starting in 1988 and continuing into 1989's third quarter, downside risks are possible if the deficit starts rising once again.

Stronger economic growth in Japan and West Germany will boost their currencies' appeal over the dollar. Current forward dollar premiums, which correspond to U.S. interest-rate differentials over the deutschemark and the yen, indicate expectations of dollar depreciation against these currencies in the next 6 months. As the rates of return on U.S. assets (either stocks or short-term instruments) decline, the dollar will resume the decline that stalled in early 1988. [Alberto Jerardo (202) 786-1705]

World real economic growth			
Calendar year	1988	1989	1990
	Percent change		
World	3.9	2.8	2.6
Developed countries	4.0	3.0	2.5
• North America	4.4	2.4	2.2
Japan, Australia, New Zealand	5.4	4.6	3.4
EC-12	3.5	3.4	2.7
Other developed countries	1.7	1.8	2.2
Developing countries	5.7	3.4	4.8
OPEC	4.0	1.2	2.8
Africa	3.1	2.5	3.3
Asia (including China)	10.1	6.5	6.4
Middle East non-oil exporters	2.0	2.4	2.8
Western Hemisphere	-0.2	-1.3	3.2
Eastern Europe	1.8	1.3	0.9

Source: Project LINK.

World Trade and Agricultural Policy

U.S. Agricultural Trade

Fiscal 1990 U.S. agricultural exports are forecast to decline to \$38 billion, a \$1.7-billion drop from fiscal 1989 exports (which were the highest since 1981). Lower prices for most grains and oilseeds largely account for what is expected to be the first decline in export value since fiscal 1986. Export volume is forecast to remain near its fiscal 1989 level because a substantial decline in wheat exports will be partially offset by gains in corn, soybeans, cotton, and high-value products (HVP's).

U.S. agricultural imports are forecast to drop to \$21 billion, \$500 million below fiscal 1989's record high. The U.S. agricultural trade surplus is expected to be \$17 billion.

The volume of U.S. wheat and flour exports is forecast to drop by 4.7 million tons (12 percent) to 34.3 million tons due to smaller global imports and increased competition, especially from Canada. European Community (EC) wheat exports are forecast to match last year's record 21 million tons. U.S. wheat prices for the 1989/90 crop year are forecast to rise because of smaller supplies and relatively large use. However, wheat prices for the 1990/91 year will decline moderately if the U.S. crop increases as expected.

In fiscal 1990, export volume for U.S. coarse grain is forecast to rise to 63.5 million tons from last year's 61 million ton level. Global demand for corn is forecast to rise 10 percent as the USSR and South Korea continue to expand use. However, increased exportable supplies in the United States have helped dampen corn prices. As a result, the U.S. export value of corn is expected to decline to \$5.9 billion in fiscal 1990 from \$6.1 billion in 1989.

Rice export volume is expected to slip by more than 500,000 tons due to lower import demand, and falling prices are expected to help push export value to \$800 million, compared with \$956 million in 1989. Importers appear to be waiting on the sidelines as the prospect of lower prices, brought on by larger exportable supplies in Vietnam and Thailand, becomes more apparent.

In 1990, soybean exports are expected to increase by 11 percent, totaling 15.7 million tons as worldwide use increases. However, a 26-percent drop in prices due to recovery from last year's drought is projected to cut soybean export value by \$700 million to \$3.4 billion. Soybean meal export volume is expected to match fiscal 1989's 4.6 million tons; however, with export prices expected to fall by 30 percent, value is forecast to decline by \$400 million.

Cotton export volume is forecast to rise to 1.7 million tons, up substantially from 1989 levels. This increase comes despite lower production in 1989/90 and will result in a

sharp drawdown in U.S. stocks. Cotton export value is expected to rise to \$2.7 billion, up \$600 million from 1989.

In fiscal 1990, as in most years, bulk products account for most of the expected changes in export volume and value. HVP's are less volatile in export volume and prices. Accounting for less than 10 percent of the 147 million tons exported by the United States, they have virtually no influence on changes in U.S. export volume.

In value terms, U.S. HVP exports are again expected to reach a record in fiscal 1990. Livestock, dairy, and poultry exports are expected to remain at fiscal 1989's record \$6.6 billion in fiscal 1990, because increased beef exports offset reduced exports of hides and skins. Horticultural products will likely rise to a record \$4.4 billion, up about \$240 million from 1989. The expected increase can be attributed to larger exports of fresh and processed fruits and vegetables, tree nuts, wines, and malt beverages. Continued strong demand from Pacific Rim countries (especially Japan and the newly industrialized countries in Asia) is fueling this growth.

Growth in U.S. High-Value Exports To Slow

Between 1985 and 1989, U.S. HVP exports grew more than \$5 billion, increasing about \$2 billion in 1989 alone. Export growth is expected to slow in fiscal 1990, partly due to a less favorable macroeconomic environment. Although the U.S. dollar's value on foreign exchange markets began declining after mid-1989 in real, trade-weighted terms, it remained above its year-ago level at the start of fiscal 1990 in October 1989, its first such year-to-year increase since October 1984.

Also, gross national product (GNP) growth in the developed countries in 1990 is expected to be less than 3 percent for the first time since 1983. High-value agricultural trade is largely directed toward developed countries. During the 1980's, debt-servicing and poor export earnings cut imports and purchasing power in the less developed countries, with a substantial negative impact on world bulk product trade.

HVP exports from the United States particularly benefited from a concentration on developed-country markets as the dollar weakened considerably in relation to those currencies between 1985 and 1989. U.S. exchange rate performance versus LDC currencies was mixed during this period. Thus, slower growth in the developed countries could reduce growth in global demand for HVP's in 1990. Furthermore, about \$4 billion worth of HVP trade is completely unrecorded in USDA volume totals. These are products marketed by the piece, box, or head, or without a standardized nonvalue measure.

Although the short-term outlook for HVP trade is the least robust in several years, HVP's will probably continue benefiting from relative price stability compared with bulk products. The value of U.S. bulk exports remains well below the peaks of the early 1980's.

Much of the long-term decline in the real value of bulk trade stems from falling prices. Bulk products are generally publicly traded commodities whose prices are set in auction-type markets. Also, the bulk products produced in one country can generally be substituted much more easily for those produced elsewhere—the physical characteristics of the products are similar, and transaction costs of securing replacements are not great. In the long run, prospects for world and U.S. HVP exports are better than those for bulk exports, partly because of these differences in price formation. [Stephen A. MacDonald (202) 786-1822]

Negotiations After the GATT Mid-Term Review

The Mid-Term Review of progress in the Uruguay Round under the General Agreement on Tariffs and Trade (GATT) concluded in April 1989, agreeing on a framework for further negotiations aimed at substantial progressive reductions in agricultural support protection. Proposals to achieve this reduction are to be submitted by December 1989 so that participants may agree not later than December 1990 on a long-term agricultural reform program and implementation period.

Discussions since April have continued to explore individual ideas, such as a strengthening of GATT rules and disciplines, aggregate measures of support, conversion of nontariff restrictions to tariff measures, and sanitary and phytosanitary regulations. Special and differential treatment for developing countries (LDC's) and nontrade concerns such as food security have also been raised.

Among the major traders, the EC presented ideas on rules and disciplines aiming to strengthen rather than fundamentally change current GATT rules on agriculture. The EC suggested tighter links between domestic and border measures to advance toward more market-oriented agriculture, but believes a two-tier price system must remain. Concerning import access, the EC would tighten Article XI on quantitative restrictions to encompass other restrictions, such as voluntary export agreements and other "gray area" measures. The EC would retain the variable levy but suggested its calculation could be more transparent and its difference between domestic and world prices narrowed. On exports, the EC proposed that subsidies be disciplined, not prohibited, by improving Article XVI on subsidies through better definition of its "equitable share" concept.

Japan presented in greater detail its nontrade concerns, particularly food security issues. Japan considers a stable supply of basic foodstuffs as indispensable in a precarious global environment for agriculture which includes population increases, soil erosion, abnormal climate, desertification, diversion of resources to feedgrain production for livestock consumption, and the like. Japan believes a policy choice by society of food self-sufficiency should be accepted, since none of the alternatives, such as food stockpiling, assured food export suppliers, or maintaining agricultural production

capacity without actual production are seen by Japan as feasible long-term policies.

The first package proposal since the April review meeting was presented in October with the submission of the United States on comprehensive long-term agricultural reform. The plan incorporates items already discussed, grouping them under headings of import access, export competition, and internal support. The U.S. package encompasses conversion of nontariff barriers to bound tariffs and a substantial reduction in all import protection over a 10-year transition period, the phase-out of export subsidies over 5 years, and classification of internal support policies into those with prohibited subsidies, those with permitted subsidies, and those with subsidies to be disciplined. The U.S. package also proposes new notification and conciliation procedures for sanitary and phytosanitary measures based on scientific principles, and includes special consideration for LDC's that demonstrate need for exceptional treatment.

Initial reactions to the U.S. submission have been mixed. Although the plan is supported by agricultural exporting countries such as the Cairns group, Japan sees the phase-out period for subsidies as too short, while the EC considers the U.S. submission unrealistic and a "step backward" because the plan reiterates subsidy elimination as a goal which the EC denounced at the December 1988 Mid-Term Review meeting. The EC Agriculture Commissioner also objects to the U.S. "tariffication" element which "could all too easily be reduced to zero" and therefore have dire consequences for the EC's 9 million farmers.

Import Access

The U.S. submission aims to orient domestic with traded world prices by adopting tariffs as the sole form of protection by the end of a transition period. As a consequence, all waivers and exceptions would be eliminated. The U.S. plan would bind tariffs starting in 1991 and reduce or eliminate them over a 10-year transition period. Nontariff measures, such as quotas, variable levies, and other import restrictions, would be replaced with a tariff-rate quota from January 1, 1991.

The initial quota would be equivalent to either the 1990 or other recent historical import level, by commodity, or to a negotiated minimum level of import access. Within-quota imports would be subject to a tariff rate to be negotiated and bound. The quotas would then be expanded by agreed minimum amounts during the transition period. Any quota remaining at the end of the transition would be eliminated, leaving the bound tariff as the sole source of protection.

Over-quota tariffs would also be bound, either *ad valorem* or specifically based on the gap between the world and domestic price of each tariff-line item averaged over 1986-88. Tariffs for over-quota imports would be progressively

reduced each year to the final bound rate applicable to within-quota imports.

A safeguard mechanism would protect against import surges, allowing tariffs to rise to an agreed rate for the remainder of the year when imports exceed either 160 or 120 percent of the previous year's imports. The former figure applies if imports of a particular commodity constitute less than 3 percent of domestic consumption, while the latter applies if imports are greater than 3 percent. Standard GATT safeguard provisions would apply after the transition period.

Export Competition

The U.S. submission proposes to phase out export subsidies over 5 years, based either on government expenditures and revenue losses, or on the commodity quantity receiving export subsidy benefits. Authentic food aid would be an exception to this prohibition of both agricultural and manufactures export subsidies, although the United States recognizes that new rules may be needed to cover acceptable concessional arrangements for food aid. The U.S. plan also reiterates the idea of revoking GATT permission under Article XI to ban agricultural exports in times of scarcity. Export tax differentials or similar charges would also be eliminated during the 5-year phase-out beginning January 1, 1991.

Internal Support

The U.S. submission approaches internal support policies by dividing them into those to be phased out, those to be disciplined, and those that are permitted. The U.S. plan lists different policies under each category.

Among support policies to be phased out, the U.S. plan includes administered price policies, income policies linked to production, and input or investment subsidy policies not provided to all producers or processors on an equal basis. These would be eliminated over a 10-year period, prohibiting after this transition any domestic policy designed to result in domestic prices higher than prevailing world market prices.

Permitted policies encompass income policies not linked to production, environmental programs, authentic food aid or disaster assistance, as well as others including research, extension, or food stockpile programs. No commitment to reduce support to this type of program would be called for in the Uruguay Round.

Policies to be disciplined are those not elsewhere specified by criteria for either the prohibited or permitted categories. They could include certain input or investment subsidies provided to all agricultural producers and processors on an equal basis, but which nonetheless impair concessions to other GATT members. The U.S. submission proposes to reduce support granted to this policy category by negotiating reductions in an aggregate measure of support (AMS). This reduction in support provided by the policies embraced under an AMS would prevent expanding one distortionary policy while reducing another.

Sanitary and Phytosanitary Measures

The U.S. submission proposes a mechanism based on scientific evidence and the principle of equivalency for the notification, consultation, and dispute settlement of measures affecting plant, animal, and human health. The U.S. plan en-

International commodity prices

Year	Wheat				Corn		Soybeans	Soyoil	Soymeal 44%	
	U.S. 1/	Arg. 2/	Can. 3/	Aust. 4/	U.S. 5/	Arg. 2/	U.S. 5/	U.S. 6/	U.S. 6/	Ham. 7/
	\$/metric ton									
1980	176	203	192	175	129	159	272	522	217	271
1981	176	190	194	175	135	139	272	464	223	269
1982	161	166	165	160	110	109	233	404	197	233
1983	158	138	167	161	137	133	269	518	222	255
1984	153	135	166	153	138	132	271	678	184	210
1985	137	106	173	141	114	103	214	596	140	171
1986	117	88	161	120	89	83	200	361	174	197
1987	114	89	134	115	77	80	204	349	194	215
1988	146	125	178	150	107	105	287	519	259	285
1989										
Jan.	175	NQ	213	179	119	119	297	463	274	301
Feb.	173	NQ	212	178	118	118	290	463	258	287
Mar.	179	NQ	210	183	119	122	296	485	260	291
Apr.	176	NQ	207	179	116	118	280	482	244	285
May	177	NQ	209	182	119	115	280	490	237	256
June	170	156	204	178	114	114	275	458	251	254
July	168	155	204	175	108	108	267	438	254	255
Aug.	165	155	196	170	102	106	231	394	237	225
Sept.	164	149	188	171	103	104	225	410	239	229

NQ = No quote.

1/ No. 2 hard winter, ordinary protein, f.o.b. Gulf ports. 2/ F.o.b. Buenos Aires. 3/ No. 1 western red spring, 13.5% protein, in store Thunder Bay. 4/ July-June crop year, standard white, f.o.b. selling price. 5/ U.S. No. 3 yellow, f.o.b. Gulf ports. 6/ Decatur. 7/ Hamburg, f.o.b. ex-mill.

compasses notification of sanitary and phytosanitary regulations involving processes and production methods from any government or nongovernment bodies with the legal power to enforce technical regulation. Imported products would be accorded treatment no less favorable than national origin products for such health measures.

The U.S. plan suggests a dispute settlement mechanism worked out in conjunction with the Negotiating Group on Dispute Settlement. Dispute settlement would be preceded by conciliation through the good offices of expert international scientific organizations which aim at setting international standards, such as the Codex Alimentarius Commission, the International Office of Epizootics, and the like.

Special and Distinctive Treatment for Developing Countries

The U.S. submission encompasses all countries, applying the proposed rules and disciplines to all GATT members. While LDC's with relatively advanced economies or agricultural sectors can comply with these proposals, the United States believes less developed countries could encounter difficulties carrying out the transition schedules for internal support and import access. Consequently, less developed countries demonstrating a need for exceptional treatment would be allowed to maintain bound tariffs at moderate levels or certain subsidies for long-term agricultural development, provided they are progressively reduced as the agricultural sectors or overall economies improve. [Edward C. Wilson (202) 786-1693]

Defining Bulk and High-Value Products

by
Stephen A. MacDonald*

Abstract: Beyond some conventions of usage, no single generally accepted definition of high-value products (HVP's) exists. This article points out some of the problems in arriving at such a definition. Two principles are proposed to help identify HVP's and establish such a definition: the relative importance of direct natural resource utilization in the production of a good, and the relative status of an item in a spectrum of differentiated products.

Keywords: High-value products, value added, differentiated, bulk.

Recent years have seen increasing interest in high-value products (HVP's), particularly with respect to U.S. agricultural trade. However, no single, authoritative definition of which products are HVP's exists, and a new, unique definition has accompanied virtually every study. This article summarizes some general similarities and conflicts in the most commonly used definitions of HVP's, discusses some of the underlying issues, and proposes some standards to guide future definitions and research.

Interest in HVP's generally stems from a feeling that exports of agricultural products with a high degree of added value do more for the economy than exports of bulk products. Most researchers would probably agree that HVP's are those products whose production and export stimulates more economic activity outside of production agriculture than is

the case for "bulk," or non-HVP, products. One area of agreement among all definitions is that raw grains and oilseeds are bulk products. Another is that extensively processed products are HVP's.

Beyond that, there is little agreement about which products are HVP's and which are bulk. To classify the remaining products, some analysts use a price threshold methodology, separating products with an arbitrary price cut-off. Other analysts classify products intuitively, producing definitions that vary because of broad, conceptual differences and narrow, practical differences.

Conceptual differences have the greatest potential for creating large differences between definitions of what constitutes a HVP. These differences about large groups of products with additional value have primarily appeared in the treatment of fresh produce, tropical products, and live animals. Although few if any researchers have published studies ex-

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explicitly excluding fresh produce from HVP's, a price threshold methodology could exclude many fruits and vegetables.

Even in the absence of conceptual disagreement, practical differences about which products are HVP's will affect researchers' definitions. Practical differences can stem from imperfect knowledge about the production and marketing of specific products, or even from differences in sources of trade data. Aggregation and naming conventions used by the U.S. Bureau of Census, the U.S. Department of Agriculture, the Food and Agriculture Organization (FAO) of the United Nations, other UN agencies like the United Nations Conference on Trade and Development (UNCTAD), and each trading country will create real and apparent differences at even the most fundamental level of data availability.

An example of potential practical differences that could be resolved through empirical investigation is the treatment of products such as "food wastes" and "crude organic materials" found in FAO's trade accounts. World trade in these products amounted to \$2 billion and \$10 billion, respectively, in 1987, roughly comparable to some estimates of all HVP exports from the United States.

Whether such products are HVP's or bulk commodities might depend on the source of such materials, or whether they are byproducts of farm activity or industrial activity. A combination of origins is likely, given the volume of trade, and the predominant origin could change over time. Thus, there is no theoretical reason to place them in either category. Resolution of these and other practical differences depends on empirical investigation, but broader conventions should help avoid conceptual differences.

Direct Natural Resource Contribution

One possible convention that may be useful in resolving conceptual differences is the fact that HVP's are products where production or transformation from a natural resource does not account for some large share of the product's value. For example, soil and moisture make possible much of the difference between the value of a corn crop and the value of its inputs of seeds and other materials. A mine serves as a natural resource component in mineral production analogous to soil and moisture in corn production. In contrast, cattle in a feedlot transform corn and other feeds produced elsewhere, and do not have such a direct link to a natural resource in their production. The transformation adds value to the feed, diminishing the contribution of natural resources to the product's final value.

However, in addition to transformation, increased value or value-added may stem from handling, monopoly pricing, or producer assumption of risks in thinly traded markets. Smaller markets, lacking the informational economies of

scale of larger ones, have higher per-unit transaction costs (2).¹ Although value-added is colloquially equated with transformation through an industrial process, anything that increases the value of a product above the cost of its physical inputs raises its value-added component (5).

For fresh produce, extensive nonprocessing value added may justify inclusion in any HVP aggregation. Production of the produce itself accounts for only a relatively small share of total costs of the product reaching U.S. consumers and export channels (3). Packing, sorting, cooling, and marketing substantially increase the value of produce between points of production and consumption.

Japan's gift melons provide a good illustration of how a product can be unequivocally high-value, yet lack any transformation from processing. The price of such melons, admittedly distorted in some sense by exchange rate fluctuations, can reach \$160 due to care in production, selection, and packaging (3). Closer to home, U.S. cranberries produced for fresh consumption are another untransformed product that nevertheless could be considered an HVP. Cranberries for processing are harvested by flooding bogs and skimming berries from the surface. Cranberries for fresh use are harvested directly, and were for years trucked from the bogs with wide-tired buggies. To avoid future production losses from damaged plants, helicopters now airlift crates from the bogs (3).

Product Differentiation

No one would claim that all melons and berries are HVP's because of these two cases. Instead, melons and berries are extensively differentiated. Along each product's spectrum of differentiation is some portion possibly falling within the HVP category.² Differentiated products have a spectrum of quality, or of price, if nothing else. Versions at the highest point in the spectrum embody more value added in the form of additional labor and capital expenditures in production, greater attention to marketing, or economic profits. This higher value added means export customers for these high-end versions of differentiated products are supporting increased economic activity or profits in the exporting country. At the other end of the spectrum would be melons and berries sold as animal feed or as inputs into some industrial process. These low-end versions would probably not receive the same investments in packing, cooling, and marketing as are applied to high-end versions.

¹ Numbers indicate references at end of article.

² This is "vertical" differentiation, since presumably the purchaser of the lowest value version would accept HVP versions if offered at lower prices. "Horizontal" differentiation among versions stems from different combinations of possible attributes in each version. The distinction has theoretical use, but whether every case of differentiation is strictly one or the other is unlikely. See (1) and (4) for a detailed discussion.

Product differentiation may help provide another convention to arrive at a generally accepted definition of HVP's, although it also raises questions. If product differentiation means some versions of a product are HVP's, it may mean other versions are not. If trade consists of both versions of a product, a simple segregation into HVP's and bulk commodities may be misleading. Cattle are a good example. Extensive use of feedlots in the United States means that meat and cattle are produced using bulk grains and oilseeds as an input, as mentioned above. However, cattle are primarily range-fed in some exporting countries.

Furthermore, any animal intended for consumption as food is less valuable than breeding stock in the United States. If nothing else, a breeding animal was produced with higher-priced inputs in the form of stud fees or some other expenditure on suitable parental stock. As a result, the prices of the three types of cattle mentioned form a wide spectrum, with the cattle exported by the United States at the high end, and the type imported at the low end.

Therefore, cattle do not fit exclusively in one category, and an estimate of world HVP trade that included or excluded all cattle would perhaps not be an accurate measure. The researcher could attempt to determine which sort of cattle predominate in world trade and assign cattle accordingly, or he or she could assign each country's trade according to the characteristics of its cattle exports. Conceivably, each country's exports or imports could be disaggregated further, but such a procedure would create further methodological difficulties.

As interest in high-value products increases the research results, conventions will evolve on what is high value and what constitutes processing.³ Further empirical studies are

necessary to determine the degree of value added or processing in various products, both to categorize them as HVP's or bulk commodities, or to distinguish their degree of processing. Most HVP studies distinguish classes of HVP's by degree of processing, but (not surprisingly) studies disagree on which products are more or less processed.

Ultimately, empirical studies would be necessary to discern differences between versions of products distinguished by their place of production. Deciding whether a given product is an HVP or a bulk commodity by examining its characteristics in only one country is unsatisfactory. Even examining the average characteristics of all versions of a product traded may not provide an adequate measure if trade is concentrated at the extremes of a differentiation spectrum.

References

1. Gabszewicz, J. and J.-F. Thisse. "On the Nature of Competition with Differentiated Products," *The Economic Journal*, Vol. 96 (March 1986), pp. 160-172.
2. Nicholson, W. *Microeconomic Theory: Basic Principles and Extensions*. Hinsdale, IL: The Dryden Press, 1978.
3. *Produce News*, various issues, Fort Lee, NJ.
4. Sheldon, I. "Intra-Industry Trade and Specialization in Processed Agricultural Products: Theory and Issues," NC-194 Occasional Paper-2, Ohio State University, 1989.
5. Sloan, H. and A. Zurcher. *A Dictionary of Economics*. New York: Barnes and Noble, 1953.
6. U.S. Dept. of Agric., Econ. Res. Serv. *High-Value Agricultural Exports: U.S. Opportunities in the 1980's*. FAER-188. September 1983.

³ At USDA, there is no single definition of HVP's. One of the earliest attempts to identify what is meant by HVP's was reference (6). More recently, the Foreign Agricultural Service (FAS) has attempted to set up benchmarks to guide the work of its High-Value Products Division. Both of these efforts include among HVP's semiprocessed grain and oilseed products (for instance, flour, bran, oilcake meal, and vegetable oils), meats, animal fats, tobacco products, fresh fruits, dairy products, eggs, and "unprocessed foods." Examples of processed foods are baked goods, confectionaries, and beverages. The major differences between these definitions are found in their treatment of livestock and tropical products. The ERS study excluded live animals and some animal byproducts, as well as raw sugar. FAS has excluded tea, coffee and cocoa beans, and most spices.

The Importance of Tropical Products in the GATT

by
Carl Mabbs-Zeno*

Abstract: This article examines the validity of GATT assumptions justifying separate negotiations on tropical products. It identifies the producing and consuming nations most important to tropical product markets, and the nations for which these markets are most important. It then relates the distinctions shared by tropical products to the purposes of the GATT.

Keywords: Agricultural trade, tropical products, GATT.

Since 1963, the General Agreement on Tariffs and Trade (GATT) has discussed tropical products in separate negotiations from other agriculture. This distinction remains in the current round. The logic behind separate negotiations views the producers of tropical products as developing countries (LDC's), the consumers as industrialized economies, and the products themselves as poor substitutes for temperate products in both production and consumption. GATT members apparently feel that these differences will allow development issues to be addressed more directly in the rules governing tropical products trade, rather than those of temperate agriculture.

What Are Tropical Products?

During the Tokyo Round of GATT negotiations (1973-79), LDC's supported a very broad definition of tropical products encompassing all commodities grown in tropical areas, even if processed before being traded. The eventual agreement,

however, listed only the first six groups of products (table B-1). The seventh group was added to the GATT definition in the consultations of 1982-84, along with some expansion of the previously defined groups.

The Ministerial Declaration that initiated the current Uruguay Round recognized the seven tropical products groups, and their processed forms. This list was understood not to constitute a formal definition, leaving open the possibility of further additions or subtractions. The agreement reached by most GATT members in December 1988 excluded rice and tobacco from immediate liberalization agreements, although it pledged further negotiations on the full list of tropical products.

Separate negotiations are best justified for commodities produced exclusively in tropical areas (poor substitutes for temperate products in production), and that compete least with products produced in temperate areas (poor substitutes for temperate products in consumption). Tropical beverages, spices, gums, essential oils, and jute meet these criteria well. Nontropical beverages clearly compete, but consumers are less likely to substitute them for tropical beverages.

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Table B-1--Tropical products considered in the GATT

Commodity group	Compete in temperate production	Compete with consumption of temperate products
1. Tropical beverages (coffee, tea, cocoa)	No	No
2. Spices, gums, essential oils, cut flowers	No Yes	No Yes
3. Certain oilseeds: Castor, palm, coconut Peanut, etc.	No Yes Yes	Yes Yes Yes
4. Tobacco Rice Cassava and other tropical roots	Yes Some No	No Yes No
5. Tropical fruits and nuts: Bananas, pineapples, etc. Citrus	No Yes	Some Some
6. Tropical wood, rubber 1/ 7. Jute, hard fibers	No No	Some No

1/ Excludes pulp, paper, and rubber footwear.

Tropical fruits are less separable on both counts. They probably substitute more freely than beverages with temperate products but they are still distinctive enough to treat as a separate market. Some question remains on what fruits are tropical, since many, such as citrus, can be grown in Mediterranean climates. The GATT remains ambiguous on whether to regard citrus as tropical.

Rice is also a major crop that can be grown in warm but non-tropical climates. It is an unlikely candidate for inclusion in tropical product negotiations because it substitutes well among consumers of temperate grains like wheat. Similarly, tropical oilseeds actively compete with temperate products, so they are not easily separated from temperate export negotiations. Tropical roots substitute as food, but they are poor substitutes. Only a small proportion is traded and that is mostly used as animal feed.

Tobacco and rubber seldom substitute with cool-weather crops. Tobacco is complicated by the relatively wide range of latitudes in which it grows, and rubber is complicated by nonagricultural substitutes. Tropical woods compete in some uses with temperate trees, such as for pulp, but are distinctive in other uses. To date, tropical forestry methods share little agriculture since they include little planting.

Cane sugar is an important commodity grown in tropical areas, but is omitted from the GATT listing since it competes well with beet sugar. Cotton is also grown in warm climates but is not designated tropical. Cotton, however, receives special treatment from other agriculture in the GATT, being governed by the Multi-Fiber Agreement.

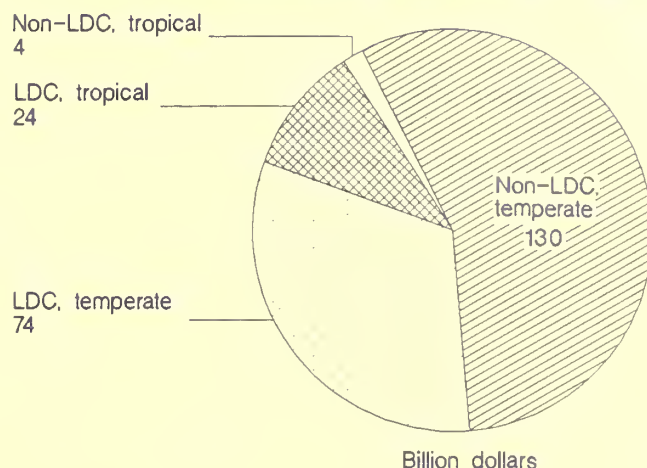
The tropical commodities best justified for separate negotiations do not include rice and oilseeds. In this article, these commodities are classified as competitive with temperate product exports, in addition to cotton and sugar as already recognized in the GATT. Other commodities in table B-1, except tropical woods, are regarded here as separable tropical products.

Importance of Tropical Products Trade

Tropical products, as narrowly defined above, provide a significant proportion of world trade, accounting for 14 percent of agricultural and 1.5 percent of merchandise trade in 1986. This exceeded the value of world cereal trade. Most of the exports came from LDC's, where tropical products provided 32 percent of agricultural and 5 percent of merchandise exports (figure B-1). The largest importers are nearly all developed countries, with the European Community (EC) receiving over 40 percent of world tropical product imports in 1986. Thus, the characterization of LDC's as tropical product exporters and developed countries as importers is generally accurate (see Box 1).

Figure B-1

Tropical Versus Temperate: Competing Commodities in World Trade, 1986

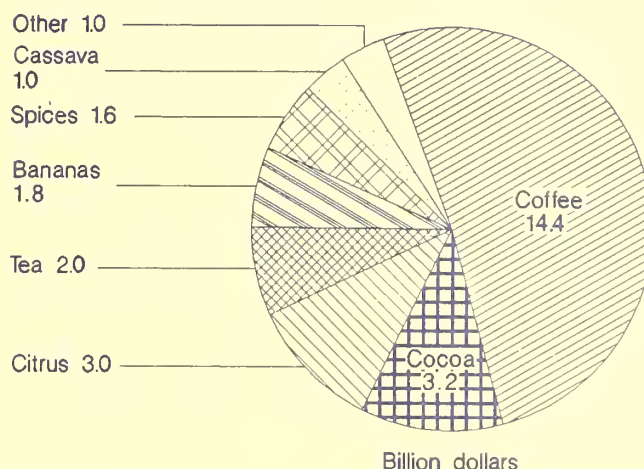


The value of tropical products exports is dominated by a few commodities, but exports are spread among many countries. Coffee accounts for about half of the combined value of tropical products exports. Over 70 percent is attributable to tropical beverages (figure B-2). More than 50 LDC's are dependent on tropical products for 10 percent or more of their merchandise exports, and in 35 of these, tropical beverages alone provided at least 10 percent of merchandise exports (map B-1).

The LDC's dependent on tropical product exports have a combined population of 1.6 billion. Many of these countries are extremely dependent on tropical product exports. Over 20 receive half or more of their merchandise export earnings from tropical products. Most of the largest exporters of tropical products are LDC's (map B-1). Several European countries and the United States, however, export significant

Figure B-2

Share of Tropical Food and Fiber Exports, 1986



Tropical Products Exporters



Shaded countries earned at least 10 percent of export revenue from tropical products or exported at least 1 percent of world trade in tropical products.

amounts of citrus and processed tropical beverages. If these commodities are included in tropical products negotiations, they provide a basis for common interest between a group of developed countries and LDC's.

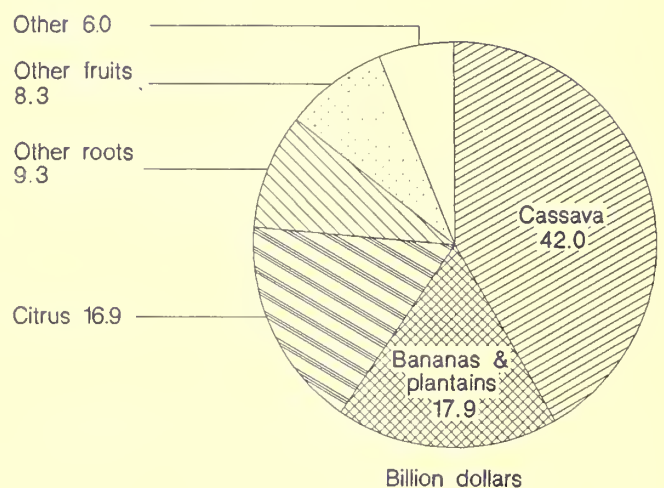
The GATT is right to assume tropical products trade is important in a large group of countries, but trade is not the most important function of tropical products in LDC's, most of whose production is used domestically. Over half of world tropical product production is in root crops, which are little traded internationally (figure B-3). Tropical beverages provide less than 3 percent of production value, despite their large contribution to trade. Negotiations ought not to assume that trade effects are of similar importance for all tropical products.

Importance of Temperate Products in LDC's

The separation of tropical products from other agriculture negotiations does not isolate LDC issues, because LDC's contribute significant exports to several temperate commodity markets. Relatively few LDC's are large exporters of products that compete in temperate markets, and these few could be isolated in the negotiations. Of the 59 instances of an LDC exporting more than \$100 million of a commodity to a temperate market in 1986, 21 involved

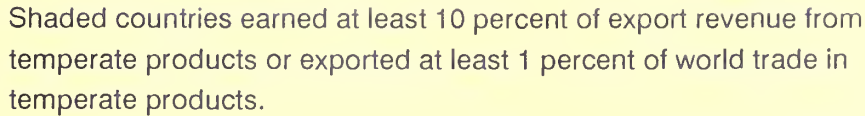
Figure B-3

Share of Tropical Products Production, 1986



Argentina, Brazil, or China. Turkey and Thailand accounted for eight other cases (map B-2).

Although few LDC's have influential temperate exports, many LDC's are dependent on such exports for 10 percent or more of their merchandise trade. The most important commodities for this group of LDC's are cotton and sugar. About half the countries in map B-3 attribute their depend-

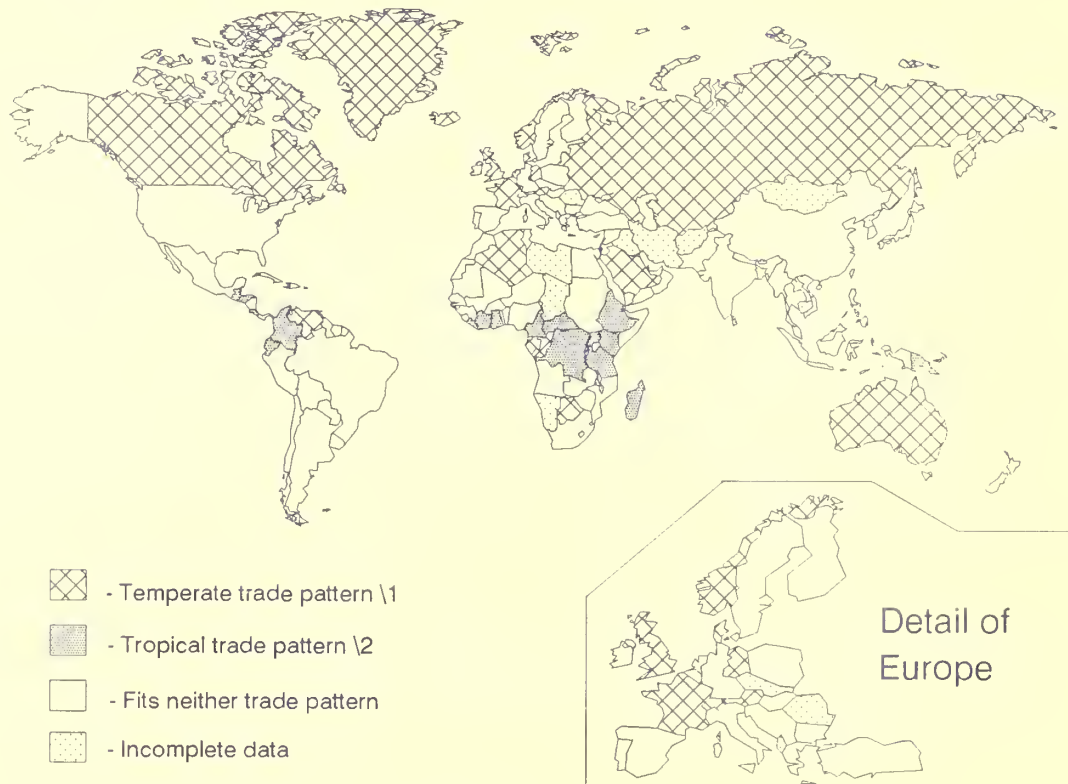


How Typical Are “Typical” Trade Patterns?

By using a particular definition of what constitutes a high or low proportion, all countries can be classified as to whether they follow the trade pattern of the archetypal LDC or not. Map B-3 shows that few countries actually display all features of the archetype.

Map B-3 shows which countries fit the temperate trade pattern. Although the proportion of developed countries that conform to the temperate pattern is higher than the propor-

Map B-3 Countries Fitting Standard Trade Patterns



1 - defined as:

tropical exports less than 10 percent of merchandise exports,
tropical imports less than 10 percent of GDP,
tropical production less than 1 percent of world production,
temperate imports less than 10 percent of GDP, and
temperate production less than 10 percent of GDP.

2 - defined as:

tropical exports exceed 10 percent of merchandise exports,
tropical imports less than 10 percent of GDP,
tropical production exceeds 10 percent of GDP,
temperate exports less than 10 percent merchandise exports,
temperate imports exceed 10 percent of GDP,
temperate production less than 10 percent of GDP.

tion of LDC's that conform to the tropical pattern, neither archetype successfully represents the majority of countries in either class. The temperate pattern even fits several LDC's, emphasizing that the interests shared within this group are not closely related to development level.

Map B-3 also generates questions about why particular countries fail to match the pattern. For example, the United States fails because it produces more than 1 percent of world tropical products value, mainly in citrus. In 1986, the U.S. share was 4.5 percent. Brazil fails to qualify because its temperate exports were more than 10 percent of export value.

Conclusion

This exercise of comparing trade patterns to a standard image suggests possible alliances in trade negotiations. It also demonstrates how poorly the distinction between these commodity groups correlates with development level. As the negotiations proceed, any differences between the tropical product and the agriculture (temperate product) groups ought to be justified on more appropriate grounds than development level of the affected countries.

Box 1: Banana Production and Trade

Although bananas are one of the most ancient of cultivated crops, it was not until the second half of the 19th century that the first commercial bananas appeared in the United States or Western Europe. Today, the value of bananas traded places this crop high among agricultural exports worldwide, and first among fresh fruits. For LDC's, bananas rank fifth in export value after sugar, coffee, cocoa, and rubber.

According to estimates by the Food and Agriculture Organization (FAO) of the United Nations, total world production amounted to 42 million tons in 1987. Latin America and Asia are the largest banana-producing regions, each accounting for 41 percent of the total, followed by Africa with 14 percent.

Only 16 of the 46 countries producing bananas for local consumption export significant quantities. The proportion of production exported varies from 35 percent in Latin America (90 percent in Costa Rica) to 6 percent in Asia and 3 percent in Africa. There are essentially two different international markets for bananas. One is the free market, which accounted for

88 percent of world trade in 1987. This market comprises all the countries that granted access to banana imports without any quantitative restrictions. The other market is controlled, and includes countries which reserve a proportion of their imports for specific exporting countries. Importers in this market include France, Italy, and the United Kingdom.

The developed countries accounted for 93 percent of banana imports in 1987. The United States is the largest import market, accounting for 40 percent of international trade, followed by the EC, accounting for 30 percent. Japan has been the most rapidly growing market, and ranked third with 11 percent.

Bananas are grown only in tropical regions, but their specific biological requirements vary according to the variety grown. Climatic and soil conditions must be met. Diseases, extreme wind, and insect damage also influence output. They are grown successfully throughout the well-watered tropics. Their edible yield per unit of land area is approximately equivalent to that of potatoes. [Nydia R. Suarez (202) 786-1821]

U.S.-EC Competition in High-Value Products

by
Ruth Elleson*

Abstract: The EC is the world's largest exporter of high-value agricultural products (HVP's), and a formidable competitor of the United States in world markets. During 1970-87, the EC successfully competed against the United States in a number of HVP's including dairy products, meat and flour. Since 1985, U.S. HVP exports have improved as a result of the lower value of the dollar and policies under the Food Security Act of 1985.

Keywords: High-value agricultural products, European Community, export competition, export policy.

The trade in high-value products of the United States and the European Community (EC) are similar in that they are both shaped by geography and that they tend to follow the trend of general trade in agricultural products.

The close proximity of the EC to Eastern Europe, North Africa, and the Middle East, and the close proximity of the United States to Canada, Mexico, and the Caribbean are important determinants of trade flows. The United States also has an edge over the EC in having a more direct shipping lane to markets in Pacific Rim countries.

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The volume of HVP trade usually follows the general trend of world agricultural trade. During the upward surge of 1970-81, U.S. and EC HVP exports reached highs of \$12.3 and \$21.7 billion respectively. Then, during 1982-85, as world agricultural trade weakened, U.S. HVP exports declined 21 percent and those of the EC fell 15 percent (4).

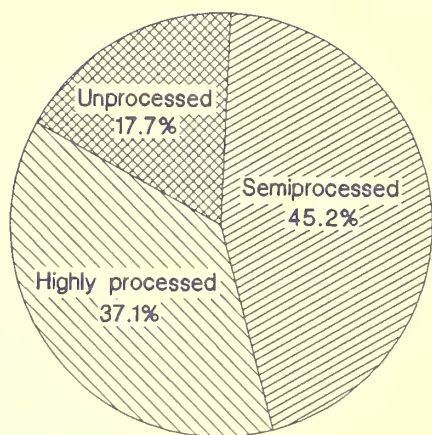
Despite the continuing stagnation of world HVP exports during 1986-87, U.S.-EC competition intensified. Policies under the 1985 U.S. farm bill helped U.S. HVP exports recover to the 1981 high of \$12.3 billion. EC HVP exports, however, soared to a new high of \$24 billion, \$2.3 billion above 1981's record level (4).

In other respects, however, trade in high-value products differs considerably between the United States and the EC. The share of HVP's in the total agricultural export mix is considerably more important for the EC than for the United States, for instance. In 1987, HVP exports comprised 40 percent of total U.S. agricultural exports, while they comprised over three-fourths of the EC total.

The composition of HVP exports—semiprocessed, highly processed, and high value unprocessed—also differs significantly between the United States and the EC. The semiprocessed category is the largest for the United States (45 percent), while the highly processed category is the largest for the EC (64 percent) (figures C-1 and C-2). 1/

Figure C-1

Composition of U.S. High-Value Product Trade, 1987



Source: U.N. data.

1 For purposes of this article, the following categories of high-value agricultural products are defined (3):

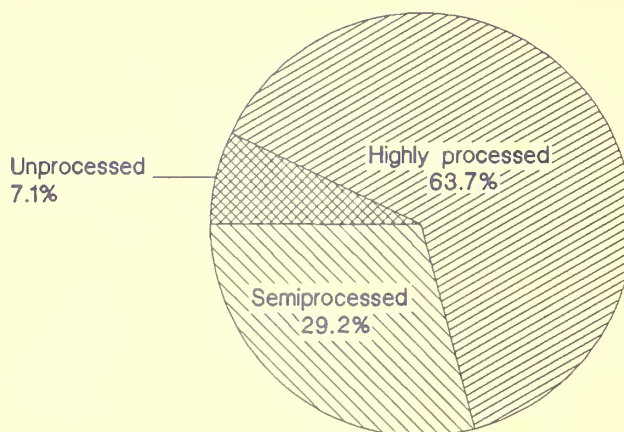
Semiprocessed products—Fresh, chilled, and frozen meat, wheat flour, animal feed, oilseed cake and meal, and vegetable oil.

Highly processed products—Prepared and preserved meats, milk, butter, cheese, cereal preparations, dried fruits, preserved or prepared vegetables, chocolate, beverages, and cigarettes.

Unprocessed high-value products—Eggs, fruits, nuts, and fresh vegetables.

Figure C-2

Composition of EC High-Value Product Trade, 1987



Source: U.N. data.

EC Export Policies for HVP's

The EC uses a combination of export and processing subsidies to make HVP's competitive on world markets. Internal prices are usually well above world prices, putting EC exporters of processed goods at a disadvantage compared with competitor countries, which can buy their ingredients at lower world prices. To redress this disadvantage, export subsidies covering the difference between the domestic and world price of the raw ingredients used in producing processed products are paid to EC exporters (1).

The EC has also instituted processing subsidies for selected HVP's, to compensate for high domestic support prices of basic commodities. Processing subsidies encourage use of the sizable surpluses built up as result of high support prices. A large number of processed foods—such as candy, chocolate, pasta, biscuits, cake mixes, wheat flour, dairy-based breakfast and baby foods, casein, ice cream, sugar, frozen dinners, and soups—receive both processing subsidies and export restitutions (1).

Semiprocessed HVP's

U.S. and EC competition is especially keen for semiprocessed HVP's such as fresh, chilled, and frozen meats, oilseed products, and wheat flour.

The most important meats in international trade are beef, pork, and poultry. Both U.S. and EC meat exports expanded rapidly during 1986-87, but EC exports remain significantly higher than those of the United States (table C-1).

U.S. and EC competition in meat has escalated over the past decade, as rapidly rising EC production and growing surpluses have created a need for expanding export market outlets. EC export refunds for meat, especially beef, have

soared. U.S. and EC competition has been especially keen in the markets of emerging middle-income countries whose production is unable to meet rapidly increasing domestic demand (6).

Despite lack of self-sufficiency in oilseeds, the EC is a competitor of the United States in oilseed products. A large part of EC production comes from crushing imported oilseeds, but this is changing rapidly as high oilseed prices under the Common Agricultural Policy (CAP) have stimulated sharp increases in EC oilseed production since the late 1970's. In recent years, U.S. soybean crushings have declined, and world supplies of other vegetable oils, such as palm oil, have flooded world markets (7).

The EC share of the world market for oilseed products is on the rise, but still remains below that of the United States. In 1987, the U.S. and EC shares of oilseed cake and meal stood at 35 and 17 percent, respectively. The U.S. and EC shares of soybean oil, however, were closer—30 and 19 percent respectively (4) (table C-2).

The EC is by far the world's largest exporter of wheat flour, with exports averaging around three-fifths of the world market during 1980-87. The U.S. share averaged less than one-fifth, but increased somewhat in 1986-87 (table C-3).

World trade in wheat flour has been declining as many of the traditional buyers—largely developing countries—invest in grain milling facilities. The huge export subsidies available on flour exports from the EC and United States, however, may have contributed to an increase in flour imports by some of these countries, but possibly at the expense of wheat sales (2).

The U.S. Export Enhancement Program (EEP) under the 1985 farm bill has enabled U.S. flour to compete with EC flour on world markets. During marketing year 1986/87, the EC priced flour in the Egyptian market—the world's largest flour import market—at \$129 per ton c.i.f., only about \$40 more than the price paid for wheat (2).

Table C-1--Meat 1/ exports by value and U.S./EC-12 export shares

Region	1970-73	1979-81	1983	1984	1985	1986	1987
World exports (\$ mil.) 2/	2,959	8,277	7,558	7,098	6,841	7,570	8,733 p
United States (\$ mil.) 3/	138	932	949	992	956	1,194	1,474
EC (\$ mil.) 4/	199	1,425	1,279	1,421	1,366	1,955	2,329
U.S. market share (percent)	4.7	11.3	12.6	14.0	14.0	15.8	16.9
EC market share (percent)	6.7	17.2	16.9	20.0	20.0	25.8	26.7

p = Preliminary. 1/ SITC code 011. 2/ Excludes intra-EC trade, U.S. exports to EC, and EC exports to the United States. 3/ Excludes U.S. exports to EC. 4/ Excludes intra-EC trade, and EC exports to the United States.

Source: (5).

Table C-2--Soybean oil 1/ exports by value and U.S./EC export shares

Region	1970-73	1979-81	1983	1984	1985	1986	1987
World exports (\$ mil.) 2/	295	1,668	1,557	2,490	1,893	860	859 p
United States (\$ mil.) 3/	189	625	415	732	426	249	259
EC (\$ mil.) 4/	47	244	199	270	251	222	161
U.S. market share (percent)	64.1	37.5	26.7	29.4	22.5	29.0	30.2
EC market share (percent)	15.9	14.6	12.8	10.8	13.3	25.8	18.7

p = Preliminary. 1/ SITC 421.2. 2/ Excludes intra-EC trade, U.S. exports to EC, and EC exports to the United States. 3/ Excludes U.S. exports to EC. 4/ Excludes intra-EC trade, and EC exports to the United States.

Source: (5).

Table C-3--Flour 1/ exports by value and U.S./EC export shares

Region	1970-73	1979-81	1983	1984	1985	1986	1987
World exports (\$ mil.) 2/	370	1,584	1,044	1,249	1,138	955	897 p
United States (\$ mil.) 3/	94	223	273	221	180	204	203
EC (\$ mil.) 4/	166	1,006	517	714	723	559	510
U.S. market share (percent)	25.4	14.1	26.2	17.7	15.8	21.4	22.6
EC market share (percent)	44.9	63.5	49.5	57.2	63.5	58.5	56.9

p = Preliminary. 1/ SITC 046. 2/ Excludes intra-EC trade, U.S. exports to EC, and EC exports to the United States. 3/ Excludes U.S. exports to EC. 4/ Excludes intra-EC trade, and EC exports to the United States.

Source: (5).

Highly Processed HVP's

The EC far exceeds the United States in exporting highly processed HVP's to world markets—\$15.3 billion versus \$4.6 billion in 1987.

The major world importers of dairy products are the developing countries. Their dry milk imports have been especially large—around 60 percent of the value traded.

Export subsidies are the basic tool used to promote EC dairy products, while foreign aid has traditionally been the major tool used by the United States. The Dairy Export Incentive Program (DEIP) under the Food Security Act of 1985 began a shift in the way the United States disposes of surplus dairy products. This program allows U.S. exporters to compete on the very highly subsidized world commercial dairy markets. Only bulk dairy products, which include butter, anhydrous milkfat (butteroil), nonfat dry milk, whole milk powder, cheddar cheese, and bulk American cheese for manufacturing are eligible, however (6) (table C-4).

For processed fruits and vegetables, U.S. export shares exceed those of the EC. The U.S. advantage for raisins and prunes in the dried fruit category, french fries in the frozen vegetable category, and cigarettes are especially strong (4).

For jams, marmalades and jellies, cereal preparations, wine and chocolates, the EC has the advantage. For some of these commodities, the EC has achieved a worldwide reputation (3). For cereal preparations, however, a number of U.S. producers of cereal products are located in the EC, and their exports to non-EC markets are attributed to the EC, not the United States.

High-Value Unprocessed HVP's

Trade in unprocessed HVP's is dominated by fresh fruits and eggs. U.S. export shares of citrus fruits exceed those of the EC by a wide margin. For deciduous fruits, however, U.S.-EC competition is keen. In 1987, U.S. and EC apple shares stood at 21 and 23 percent, respectively, and the shares of other fresh fruits such as pears, berries, and stone fruit were equally close (4).

For table eggs, the EC export share is traditionally larger than that of the United States. In 1987, the shares were 35 and 17 percent, respectively. The EC's traditional table egg markets have been in the Middle East and North Africa, but in recent years that region has become more self-sufficient. EC exporters, therefore, are seeking new outlets, and as a result, the United States is encountering competition from the EC in some Asian markets (6).

U.S. Overseas Food Processing

U.S. multinational food processing firms are very active in international markets, and many are located within the Community, thereby avoiding import tariffs and benefiting from favorable internal EC agricultural policies. When exporting to markets outside the EC, exports of U.S. subsidiaries benefit from EC export subsidies, as do domestic firms.

U.S. exports of HVP's would be significantly higher if sales made by subsidiaries were counted as U.S. exports. While the cost of developing these markets and shipping directly from the United States has been too high for many U.S. firms in the past, the lower value of the dollar could offset, at least in part, this disadvantage for certain products.

Conclusions

Foreign competition is strong and protection of domestic markets is widespread in the international market for HVP's. Yet the expansion of U.S. high-value exports should be possible, despite the obstacle of subsidized EC exports.

The United States, with a plentiful supply of high-quality, low-priced inputs and efficient processing capacity, has the potential for increasing its share of the HVP market. The lower dollar and U.S. policy changes authorized under the 1985 farm bill have already boosted U.S. HVP exports. Future expansion will depend upon U.S. competitiveness and marketing strategies, as well as changes in foreign demand.

A number of HVP's offer excellent opportunities for the United States to expand its overseas markets. Commodities with favorable expectations include semiprocessed meats, especially poultry and pork; semiprocessed oilseed products,

Table C-4--Milk and cream 1/ exports by value and U.S./EC export shares

Region	1970-73	1979-81	1983	1984	1985	1986	1987
World exports (\$ mil.) 2/	766	2,812	2,566	2,524	2,463	2,753	2,970 p
United States (\$ mil.) 3/	91	108	227	207	231	272	243
EC (\$ mil.) 4/	409	1,966	1,451	1,508	1,494	1,637	1,902
U.S. market share (percent)	11.9	3.8	8.9	8.2	9.4	9.9	8.2
EC market share (percent)	53.4	69.9	56.6	59.8	60.7	59.5	64.0

p = Preliminary. 1/ SITC 022. 2/ Excludes intra-EC trade, U.S. exports to EC, and EC exports to the United States. 3/ Excludes U.S. exports to EC. 4/ Excludes intra-EC trade, and EC exports to the United States.

Source: (5)

such as meals and oils; and fresh and processed fruits, vegetables, and nuts.

References

1. *Agra Europe*, "CAP Monitor." Various issues. London.
2. International Wheat Council. "World Trade in Wheat Flour in 1986/87." London, 1987.
3. Mathia, Gene, and Ruth Elleson. "Trading High-Value Products," *National Food Review*. USDA, ERS. Fall 1987.
4. United Nations Trade Statistics, 1970-87. Tabulations by USDA, ERS.
5. U.S. Dept. of Agric., Econ. Res. Serv. *High-Value Agricultural Exports: U.S. Opportunities in the 1980's*. FAER-188. September 1983.
6. U.S. Dept. of Agric., Foreign Agricultural Service. *Dairy, Livestock and Poultry, U.S. Trade and Prospects*. Various issues.
7. _____. *World Oilseed Situation and Market Highlights*. Various issues.
8. Value Line Investment Survey. Selected companies, 1987.

Developing Countries' Performance in High-Value Agricultural Trade

by

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Abstract: The subject of this article is the performance of 35 developing countries in high value agricultural exports to major OECD markets during 1970-87. The roles of supply and demand factors in determining this performance, including import demand growth in the OECD, the commodity composition and market structure of developing country high value exports, and changes in developing country competitiveness are analyzed. The article concludes with a discussion of prospects for increasing developing countries' high value agricultural exports, given the importance of world demand conditions in shaping export performance.

Keywords: Agricultural trade, developing countries, high-value products.

Many countries are interested in increasing their share of the market for high-value agricultural products (HVP's). One reason is the faster growth in this market compared with trade in low-value and bulk items (3), due in part to the more favorable price trends for high-value than for low-value goods (5). A second reason is the greater economic activity generated by producing high-value agricultural exports, since export of these goods represents the sale of both a product and the services embodied in its processing, transport, and storage.

For developing countries, expansion of high-value agricultural exports boosts their productive capacity. Food processing industries are generally the first to develop during early stages of industrialization. These industries supply products

essential to the domestic market and use relatively simple technologies. They generally represent a large share of developing countries' industrial output, a share that declines with rising incomes (1).

Country and Commodity Coverage

The 35 developing countries included in this study were chosen by including the ten leading developing-country exporters of each of the 41 HVP's included in the study.¹ Trade flows between the developing countries and Organiza-

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¹ The countries included in the study are Algeria, Argentina, Brazil, Cameroon, Chile, China, Colombia, Costa Rica, Cote d'Ivoire, Dominican Republic, Ecuador, Egypt, El Salvador, Ghana, Guatemala, Honduras, India, Indonesia, Kenya, Madagascar, Malaysia, Mauritius, Mexico, Morocco, Nigeria, Pakistan, Philippines, Singapore, Thailand, Tunisia, Turkey, Uganda, Uruguay, Venezuela, and Zimbabwe.

tion for Economic Cooperation and Development (OECD) partners were analyzed, using importers' data published by the United Nations. The frequently reported apparent decline in value of global HVP trade is really attributable to a decline in the number of reporting countries in the later years.

We divide HVP's into three categories: semiprocessed, highly processed, and traditional (table D-1). The two categories of processed goods correspond with the degree of product transformation prior to export. Semi-processed goods are items having undergone an intermediate level of processing, generally leaving the product suitable as an input for other uses. Highly processed goods have undergone more extensive processing, and are generally consumer-ready.

The traditional category includes both those commodities that have high unit value but little processing—such as cocoa, coffee, and tea—and commodities with low unit value, but whose value added is very simple, or does not represent development of agriculture-based industries, such as fresh vegetables and sugar. The traditional category can be used to analyze the relationship between export growth and development, since the shift out of these traditional, high-

value exports into more processed high-value exports signals structural change and development in developing countries' production and exports.

Developing Countries' Performance In the OECD Market, 1970-87

The 35 developing countries account for about 30 percent of the high-value agricultural imports of OECD countries.² At the same time, the OECD is the leading export market for the developing countries, accounting for an average of two-thirds of their high-value exports during 1970-87. Brazil is by far the largest developing-country exporter to the OECD, with exports nearly three times greater than Colombia, the second largest exporter in 1985-87 (table D-2).

Developing countries' performance in OECD markets was steady throughout the 1970's, when they maintained a 30-percent share of OECD imports of HVP's. Their market share fell slightly during the 1980's, to 27 percent by 1986-87.

² OECD import demand refers to global import demand by each of the four OECD markets. It includes intra-OECD trade among the four markets.

Table D-1--Commodities included in the study

High-value product category	SITC code	Commodity
Traditional exports:	051	Fruits and nuts, fresh
High unit value, unprocessed	0541-6	Vegetables, fresh and simply preserved
High or low unit value,	0611	Sugar, raw
with simple processing	0612	Sugar, refined
	0711	Coffee, green or roasted
	0721	Cocoa beans, raw or roasted
	074	Tea and mate
	075	Selected spices
	121	Tobacco, unmanufactured
	211	Hides and skins, undressed
	263	Cotton
Semiprocessed:	011	Meats, fresh, chilled, frozen
High or low unit value	022	Milk and cream
	0311	Fish, fresh
	0313	Shellfish
	4113	Animal oils and fats
	0814	Meat and fish meal
	046	Wheat flour
	0812	Bran, pollard, sharps, etc.
	052	Fruit, dried
	05481	Roots and tubers (cassava pellets)
	0722-3	Cocoa prod. powder, cake
	421-2	Vegetable oils
	0813	Oilseed cake and meal
	2927	Cut flowers
Highly processed:	0312	Fish, dried, salted
High or low unit value	032	Fish, tinned
	012	Meats, dried, salted
	013	Meats, canned
	023	Butter
	024	Cheese
	048	Cereal preparations
	053	Fruit, preserved
	055	Vegetables, preserved
	062	Sugar preparations
	0713	Coffee, essences, extracts
	073	Chocolate and products
	1121-3	Wine and beer
	1222	Cigarettes
	0913-4	Lard, fat, and margarine
	099	Food preparations, n.e.s.

Table D-2--OECD imports of HVP's from selected developing countries, classified by level of processing

Country	Traditional	Semi-processed	Highly processed	Total
Million dollars				
1970-72 average:				
Brazil	1,102.0	321.6	136.3	1,559.9
Argentina	96.7	538.4	146.7	781.7
Mexico	501.4	160.3	41.1	702.8
Colombia	430.1	18.4	1.5	449.9
Philippines	266.3	120.7	34.0	421.0
India	266.8	90.5	8.5	365.8
Turkey	304.8	55.5	4.8	365.1
Cote d'Ivoire	277.3	41.2	19.5	337.9
Indonesia	138.3	116.7	2.0	257.0
Morocco	174.3	26.4	50.7	251.5
Others	2,203.9	705.5	171.0	3,080.4
Total	5,761.8	2,195.2	616.0	8,573.0
1985-87 average:				
Brazil	2,835.3	1,910.5	1,613.2	6,359.0
Colombia	2,265.7	254.1	62.7	2,582.5
Mexico	1,440.1	496.2	298.4	2,234.8
Thailand	230.2	1,278.4	612.1	2,120.7
Cote d'Ivoire	1,603.2	261.3	130.3	1,994.8
China	700.5	786.4	425.6	1,912.5
Argentina	323.9	1,147.2	296.5	1,767.6
Indonesia	811.1	686.8	33.1	1,531.0
Philippines	597.7	592.7	256.5	1,446.9
Ecuador	770.4	393.3	73.9	1,237.6
Others	8,304.0	3,007.5	712.3	12,023.7
Total	19,882.1	10,814.5	4,514.5	35,211.0

Because of the importance of the OECD market, even a small shift in OECD market share has a significant impact on the export earnings of developing countries. The 3-percent loss in share of the OECD market represent a 9-percent loss in potential export earnings, worth \$3.7 billion during 1980-87 (table D-3). Losses of market share for traditional and semiprocessed HVP's were partially offset by an increased share of highly processed OECD imports.

Determinants of Developing Country Performance in the OECD Market

A simple way to analyze developing-country export performance in the OECD market is to compare these countries' actual level of exports with the level that would have been achieved if they had maintained a constant share. If a country maintains a constant market share of OECD imports, then its export growth can be attributed to growth in the level of world trade.

Deviations from the "constant market share" level can be attributed to three sources:

- The commodity effect, which reflects whether a developing country's exports are concentrated in commodities whose trade grew faster or slower than total high-value product imports by the OECD;
- The market distribution effect, which reflects whether the country exports to an OECD market whose import demand is stronger or weaker than total OECD high-value import demand; and

- The competitiveness effect, which measures deviations from the constant market share norm that are not explained by the structure of trade; these deviations may be caused, for example, by changes in productivity or in trade and exchange rate policies.

The role of demand in determining performance can be measured by the effects of growth in world trade, commodity composition, and market distribution on developing country export performance. The supply factor is represented by the competitiveness effect.

The Role of Demand

Demand factors have been the primary determinants of developing-country performance in high-value agricultural exports. Growth in OECD import demand has been the most important, accounting for 85 percent of export performance in the 1970's, falling to 72 percent in the 1980's (table D-4).³

The commodity composition of developing countries' high-value exports has become an increasingly important determinant of their performance, too, accounting for 6 percent of export performance in the 1970's and 13 percent in the 1980's. Its negative value indicates that developing-country

Table D-3--Losses in developing-country export earnings from losses in OECD market share

Item	1978/79	1986/87
Million dollars		
Constant market share 1/	29,001	40,622
Actual level of exports	28,822	36,943
Difference between norm and actual	179	3,679

1/ Constant market share norm measures the level of exports that would be achieved if LDC's maintained a constant share of the OECD market.

Table D-4--Determinants of developing-country performance in HVP exports to major OECD markets

Item	1970/71-1978/79 average	1980/81-1986/87 average
Percent		
Percent of "constant market share" export level achieved 1/	99	91
Percent of performance due to: 2/		
Growth in world market	85	72
Commodity composition	-6	-13
Market distribution	-2	1
Residual	7	-15

1/ Constant market share norm measures the level of exports that would be achieved if LDC's maintained a constant share of the OECD market. 2/ Negative numbers indicate that the factor contributed to a decline in exports below the constant market share level.

³ OECD import demand growth is measured as the level of high-value exports that would be achieved if developing countries maintained a constant market share, so that developing-country exports grow at the same rate as high-value imports by the OECD from the world.

exports are concentrated in commodities experiencing relatively slow demand growth, contributing to high-value exports' falling below a constant market share level.

The similarity in import demand among the OECD markets means that the distribution of developing countries' exports among OECD markets has had little role in explaining performance of developing countries as a whole, although it is important in explaining the performance of some regions and countries.

Growth In OECD Import Demand

Trends in OECD import demand for HVP's have accounted for most of developing countries' performance, and this growth in demand weakened considerably in the 1980's. In nominal terms, high-value imports by the OECD grew by a phenomenal 36 percent annually in the 1970's, seemingly collapsing in the 1980's to 6 percent growth annually.

High inflation in the 1970's which slackened in the 1980's accounts for most of this decline. However, even in real terms, the decline during the 1980's was significant. Real annual growth in OECD imports of HVP's (deflated by industrial countries' wholesale price index) averaged 12 percent in the 1970's, declining sharply in the 1980's to 2 percent annually.

The decline in growth of import demand was concentrated in traditional products, which are the most important category of developing countries' high-value exports. Real average annual growth in OECD import demand for traditional, unprocessed products fell from 8 percent during the 1970's to zero during the 1980's. Real average annual growth in demand for semi- and highly processed imports fell to 4 percent annually during the 1980's, from 15 and 13 percent, respectively, in the 1970's.

The Effects of Commodity Composition

The dominance of traditional and unprocessed products in their high-value exports accounts for the negative effect that commodity composition has had on developing countries' exports throughout 1970-87. OECD import demand for traditional products increased at a slower rate than for semi- and highly processed items during the period.

In the 1970's, the relatively slow growth in OECD demand for traditional goods was offset by a 1-percent gain in developing countries' share of the OECD market for these goods. In the 1980's, however, OECD countries not only continued to have sluggish demand for traditional HVP's, but developing countries lost 3 percent of their market share for traditional products during 1980-87.

Developing-country export performance has been improved by the shift in commodity composition toward more

processed items. The share of traditional goods in developing countries' high-value agricultural exports fell from 67 to 56 percent from 1970-72 to 1985-87, while the share of both semi- and highly processed items rose (table D-5). In the 1970's, developing countries achieved a small increase in market share for both semi- and highly processed exports (table D-6). In the 1980's, their semi-processed market share fell again, offsetting relatively better OECD demand conditions for these goods.

Developing countries' market share in highly processed goods increased by 1 percent in the 1980's, and this group of products enjoyed strong demand relative to traditional HVP's during the 1980's. Nevertheless, favorable developments in highly processed exports were outweighed by the importance of relatively slow demand for traditional exports.

The Effects of Market Distribution

For all 35 developing countries, the market effect has been small, although for particular regions or countries the effect is significant.

The market destination effect has been shaped by two trends in the OECD market. First, all four of the OECD markets had an increasing share of semi- and highly processed goods in their HVP imports from developing countries (table D-5), and a decreasing share of traditional products. The EC-12 showed the smallest transition during 1970-87 in the types of HVP's it imports, with only a small decline in the proportion of traditional products in their HVP imports. Japan showed

Table D-5--Composition of developing-country HVP exports to each OECD market

Market and type of HVP export	1970-72	1985-87
Percent		
United States:		
Traditional	75	59
Semiprocessed	15	22
Highly processed	10	18
EC-12:		
Traditional	61	57
Semiprocessed	32	33
Highly processed	7	9
Canada:		
Traditional	80	65
Semiprocessed	8	10
Highly processed	13	25
Japan:		
Traditional	70	45
Semiprocessed	27	45
Highly processed	4	10
All above markets:		
Traditional	67	56
Semiprocessed	25	30
Highly processed	8	13

Table D-6--Share of LDC's in OECD HVP imports

Type of HVP export	1970-71	1978-79	1980-81	1986-87
Percent				
Traditional	46	47	46	44
Semiprocessed	23	25	25	22
Highly processed	10	11	11	12
All HVP exports	30	30	29	27

a very significant shift in composition of its HVP imports. The sharp decline in the share of traditional goods in its imports has been accompanied mainly by a rise in the share of semiprocessed items.

A second characteristic is the differences in type of commodity demand by each of the OECD markets (table D-7). The United States shifted from being a relatively slow-growth market for all types of HVP's in the 1970's, to being a strong market for semi- and highly processed goods in the 1980's. The EC-12 has been a relatively strong market for traditional products throughout 1970-87, but a relatively weak market for semi- and highly processed goods. Japan has been a very strong market for semi- and highly processed goods since 1970, but a weak market for traditional products.

It follows that countries who export a large proportion of their semi- and processed products to Japan would experience a positive market distribution effect on their export performance. This is what occurred in Asia. The share of semi- and highly processed goods in their HVP exports rose from 44 to 61 percent during 1970-87. At the same time, Japan's share in their exports of these goods nearly doubled, from 19 to 36 percent of semiprocessed exports, and from 11 to 22 percent of highly processed goods. Strong growth in demand by Japan is the main reason for Asian countries' enjoying the large, increasing, and positive market distribution effect throughout 1970-87.

Similarly, African countries benefited from the market distribution of their exports. The share of their traditional exports going to the EC-12 rose from 70 to 80 percent during 1970-87. This, combined with the fact that global demand by the EC-12 for traditional HVP's was the strongest among the OECD countries, resulted in a positive market distribution effect on the African countries' export performance.

In contrast, market distribution has consistently had the largest negative effect on Central American countries' export performance. Most of this region's exports go to the United States, and the share of the region's traditional and highly processed exports going to the United States increased in the 1980's. Because the United States was the slowest growing of the OECD markets in the 1970's for all high-value products, Central American countries found their export markets were more sluggish than growth in the OECD market in general would have supported.

Table D-7--The high-growth markets 1/

Type of HVP export	1970's	1980's
Traditional	EC-12	EC-12
Semiprocessed	Japan	United States, Japan, Canada
Highly processed	Japan	United States, Japan

1/ Growth in each market's import demand is higher than total OECD import demand.

Because the United States became a relatively strong market for semi- and highly processed products in the 1980's, countries making a transition toward more processed goods benefited from their trade with the United States. The Central American countries achieved little transition in their exports, however. Instead, traditional HVP's continue to comprise most of their HVP exports, and an increasing share was exported to the United States in the 1980's. Because the United States is the slowest growing among OECD markets for traditional HVP's, the Central American countries have experienced a negative market distribution effect on their exports.

The most valuable traditional HVP exports to the OECD are coffee and fresh fruit and nuts. The most valuable semi-processed items are shellfish and oilseed meal (table D-8). Slow growth in EC-12 import demand for fish, compared to the United States and Japan, explains much of the negative market distribution effect that the EC-12 market has had on developing countries' exports.

The Role of Supply

The deviation in actual export performance from the level implied by a constant market share that is not explained by the commodity or market structure of exports, is a residual termed "competitiveness." While this term can encompass both supply and demand factors, a change in competitiveness is generally assigned mainly to supply side factors that affect a country's export market share. These include developments that change the price of a country's exports relative to other exporters, such as changes in productivity or product quality; domestic policies affecting production and trade; or domestic demand growth affecting the export availability of output.

Developing countries experienced a significant loss in their export competitiveness during 1970-87. Gains in competitiveness in the 1970's, which accounted for 7 percent of export performance, changed to losses in competitiveness during the 1980's, which accounted for a negative 15 percent of export performance, contributing to a level of exports that fell below the constant market share level.

Domestic policy likely played an important role in explaining changes in developing countries' competitiveness. For instance, Brazil's substantial loss in competitiveness during the 1980's probably reflected government intervention in the agricultural and export sectors. Even though Brazil has export promotion programs, they have been more than offset by high export taxes. Chile, in contrast, became much more competitive throughout the 1970-87 period, achieving a level of exports about double the constant market share level. Chile made substantial gains in its share of its export markets, mainly for fresh fruits. Several of the economic policies introduced by the military government in 1974 and continued since then, have benefited agricultural production

Table D-8--Value of OECD imports from 35 LDC's, 1987

Commodity	United States	EC-12	Japan	Canada	Total
Million dollars					
Coffee, green or roasted	2,542	3,671	586	220	7,019
Fruit and nuts, fresh	1,833	1,994	491	225	4,543
Shellfish	1,500	563	1,622	39	3,724
Oilseed meal	2	2,174	48	0	2,224
Fruit preparations	1,068	744	110	112	2,034
Cocoa beans, raw or roasted	530	1,378	86	20	2,014
Vegetables, fresh	563	506	191	26	1,286
Cotton	11	753	480	24	1,268
Vegetable oils	397	734	120	17	1,268
Meats, fresh and chilled	137	699	300	1	1,137
Fish, fresh	383	437	266	5	1,091
Fish, tinned	317	455	131	70	973

and exports. These include the devaluation of the peso and reduction of red tape on export procedures and financial transactions—crucial factors in exporting Chile's highly perishable fruits.

Asia is the only region which experienced an improvement in its competitiveness in the 1980's, reflecting the gains made by Thailand, Singapore, China, and Pakistan. Thailand's improvement in competitiveness is based on export promotion policies that were instituted in the early 1970's. Much of Thailand's export performance is accounted for by its increased cassava pellet sales to the EC-12, worth \$822 million in 1987, and its fresh shellfish sales to the booming Japanese market.

Most of the change in developing countries' competitiveness in the 1980's is accounted for by their loss in EC-12 market share for semiprocessed goods, from 23 percent of the EC-12 market in 1978/79 to 19 percent by 1986/87. Change in this market share is important because the EC-12 is the developing countries' leading export market for semiprocessed agricultural products. This is true even though their share of these exports has fallen steadily, from an average of 64 percent in the 1970's to 55 percent by 1987.

Developing countries made significant gains in share of the U.S. market for semi- and highly processed goods in the 1970's, but have not appreciably increased their U.S. market share of any HVP's in the 1980's.

Prospects for Increasing High-Value Exports

Demand factors have been more important than supply in explaining developing country performance in the OECD market for HVP's during 1970-87. And growth in OECD import demand weakened considerably in the 1980's, compared with the rapid real growth in the 1970's. An important issue in assessing prospects for increasing their HVP exports is whether developing countries can successfully manage supply-side factors that affect their competitiveness, regardless of the weaker demand conditions that confront them.

At the same time that demand conditions have weakened, changes in competitiveness, which mainly reflect supply conditions, became an increasingly important determinant of export performance in the 1980's, for both competitive and uncompetitive exporters. Although developing countries on the whole have experienced a decline in their competitiveness as their share of the slowing OECD market for HVP's shrinks, in some countries domestic policies, such as exchange rate adjustments and export promotion programs, have enabled exporters to increase their market share. Besides Chile, these include Thailand, China, Singapore, Pakistan, Venezuela, and Ecuador.

In the 1970's, real average annual growth in OECD demand for HVP's from developing countries whose competitiveness was increasing, was more than four times as high as from uncompetitive developing countries. In the 1980's, real OECD demand growth for HVP's slowed for both types of countries. For competitive countries, this growth was still positive, but for uncompetitive countries, OECD demand for their HVP exports was falling in real terms. Countries that achieved increases in competitiveness in their HVP exports to the OECD faced stronger demand conditions than those countries experiencing a loss of competitiveness. Yet, in the 1980's, competitive countries were able to improve their competitive export performance despite weaker demand conditions.

Increased HVP exports can contribute to the development process through several channels, including the additional employment and income that their production and export generates, and the increased foreign exchange that they can earn. Expansion of this type of export is therefore particularly important to developing economies. Supply-side efforts to improve developing countries' competitiveness in this market are likely to be the most important element in expanding these exports, since growth in demand has become a weaker engine for HVP export growth.

References

1. Chenery, Hollis, and Lance J. Taylor, "Development Patterns: Among Countries and Over Time." *Review of Economics and Statistics*, Vol. 50, No. 4 (November 1968), pp. 391-416.
2. International Monetary Fund. *International Financial Statistics*. Washington, DC, various issues.
3. Lee, John E., Jr., Economic Research Service, USDA. "Trends in World Agriculture and Trade in High-Value Food Products." Speech given to IFT Meeting and Food Exposition, New Orleans, June 20, 1988.
4. United Nations. *Commodity Trade Statistics*. ST/EAS/STAT/Series D. New York, various years.
5. U.S. Dept. of Agric., Econ. Res. Serv. *High-Value Agricultural Exports: U.S. Opportunities in the 1980's*. FAER-188. September 1983.

When Does Trade Liberalization In Tropical Beverages Improve Export Revenues?

by
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Abstract: Simulation models for coffee, cocoa, and tea show that under certain conditions, such as low initial taxes on production, export revenue from these products may decline in some countries under trade liberalization as it is currently being implemented. Analyzing the net effect of liberalization for any particular country in these markets requires detailed review of the potential to improve trade revenue, as well as balancing these effects against other economic variables affected by policy reform.

Keywords: Agricultural trade, policy reform, tropical beverages.

Developing countries (LDC's), responding to pressures from international lenders and domestic sources to improve their export performance, have undertaken substantial reductions in the role their governments play in agricultural production and trade in the 1980's. These reforms are termed liberalization regardless of the institutions motivating them. For some important tropical agricultural commodities, however, export revenue may decline if LDC governments greatly reduce their intervention.

The apparent difference between claims by reformers of tropical agricultural policies and the revenue decline found here is due to reformers of each country believing they are the only innovators in a static world. With liberalization occurring in many trading nations, the effects of individual country reforms collectively reach into the world market.

Larger effects are associated with policy reform in the exporting nations. The effects of liberalization on various agricultural commodity markets have been estimated by

analyzing economic models of world production and trade. Models developed at the Economic Research Service (ERS) simulate a medium-term response to various policy reform scenarios in comparison with the conditions prevailing in 1986. They suggest how international prices would change with liberalization, and how each country's production and trade would adjust.

Liberalization of markets for temperate commodities is dominated by the effects of policies in the developed countries. Producers in these countries are typically supported by government programs that raise domestic prices above international market levels. Removal of these programs would lower production and raise the international price. Consumers in developed countries would benefit from lower prices in their countries. On the whole, each temperate exporting nation would gain efficiency.

LDC Policy Effects Important

In contrast, liberalization of markets for tropical commodities is dominated by the effects of policies in LDC's. The results of liberalization in these commodities are not a

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simple reflection of the results in temperate products. The efficiency gains likely to be experienced by developed countries have no parallel in LDC's. The results are particularly important because many LDC's depend heavily on exports of tropical products that do not compete with temperate commodities. Over 50 countries derive at least 10 percent of their export earnings from tropical products. Dependence of 25 percent or more on agricultural exports of coffee, bananas, and cocoa is common, with 27, 10, and 8 dependent countries, respectively, in 1986.

Models of the markets for tropical beverages (coffee, cocoa, and tea) were built at ERS to determine how trade liberalization would affect trade revenue in the exporting LDC's. The models are structured similarly to those used to analyze temperate competing commodities. Fourteen exporters representing 89 percent of world coffee trade, 7 exporters representing 77 percent of world cocoa trade, and 8 exporters representing 71 percent of world tea exports were individually represented in the tropical beverage models. Each simulation indicates how production, trade, and prices would change for each country if a specified set of government policies were removed in the base period.

Analysis of liberalization in tropical beverages is simplified by the distinctive role they play in LDC economies. Domestic demand has relatively little influence in the market. Processing is unimportant for most countries, as are effects on consumer welfare.

The developed-country liberalization scenarios indicate trade revenue would rise for each commodity and each exporting nation (tables E-1 to E-3). For the three commodities together, however, the increase is only 2.4 percent. The only importer policies in the model are tariffs, and these are generally low for all importers and all tropical beverages. Removal of the tariffs would raise prices by less than 1 percent in the primary product forms, the form in which most trade occurs.

This simulation represents the approach taken in the current round of negotiations under the General Agreement on Tariffs and Trade (GATT). An agreement was reached at the midterm of the negotiations in December 1988 to reduce or eliminate tariffs on tropical beverages, spices, oils, roots, fruits, woods, rubber, and jute (but not rice or sugar). U.S. concessions include 25-percent reductions on tariffs for 43 specific commodities. The United States linked these concessions to eventual liberalization in the agriculture section of GATT, having included a "snap-back" provision which would restore tariffs in the event of failure in the agriculture group. Other countries at the GATT, however, have not accepted this linkage. LDC's could also benefit by capturing a larger share of the value added through processing, at the same time negotiating changes in the present tariff structure that leads to "tariff escalation" (see Box 2).

Apart from results agreed to at the Mid-Term Review of the GATT negotiations, LDC's are under pressure to liberalize their agriculture from aid donors and lenders. The debt crisis that developed in the early 1980's provided leverage for international lenders to promote their view of policy reform for LDC's. Lenders have promoted privatization of marketing, paying international prices to farmers, and freer international exchange of currency. By mid-1989, the International Monetary Fund (IMF) had ongoing arrangements for loans based on more market-oriented policies in 46 countries. The number of countries in arrears to the IMF was down in 1988/89 to 49 from 55 the previous year. The World Bank, the United States, and other international lenders and donors have increasingly conditioned their loans and aid to developing countries on policy changes that reduce government intervention.

Pressures for similar reforms have arisen within many LDC's in response to domestic perceptions of reform needs. Past policies designed to favor industrial development at the expense of taxing agricultural producers are widely perceived to have failed. This accounts for the prevalence of policy liberalization throughout the developing world.

Supporters of policy liberalization see government intervention as an impediment to production when it taxes agriculture and as an impediment to other, more efficient sectors when it subsidizes agriculture. The typical case for producers of LDC export commodities has long been one of net taxation, as LDC governments sought revenue from industries already capable of providing it. The policy liberalization argument claims that reduced taxation would lead to increases in production, and thus in trade revenue. Producers would be richer, and the country would be richer. Government revenue would have to come from some mechanism less destructive to economic incentives.

This logic, however, is flawed with respect to trade revenue because of its assumption that the only changes occurring are those in a small, isolated, liberalizing country. If many countries with similar policies in the same market liberalize together, or if a large country liberalizes, increased production will reduce international prices. The net effect on trade revenue is not obvious from theory, because the effect depends on how much the price falls in relation to the rise in quantity.

Model Results

Our simulations show that liberalization by LDC tropical beverage exporters could lead to losses of revenue much larger than the gains of revenue they stand to realize from the removal of tariffs by importing countries.¹ For the three

¹ For a complete description of the Static World Policy Simulation (SWOP-SIM) modeling framework used here, see (1).

commodities together, trade revenue would fall by 26 percent, or about \$4 billion. The effects, however, would vary substantially among exporting nations, and several nations would gain trade revenue.

In coffee trade, the major gains in revenue would be experienced by El Salvador, Uganda, Zaire, and Ecuador. Overall, however, coffee exporters would suffer a revenue loss of 26 percent (table E-1). Of the six leading coffee exporters, all would experience a loss of export revenue to some degree.

The cocoa model shows an export revenue gain only for Ecuador, while the exporter group as a whole experiences a revenue loss of 30 percent. Côte d'Ivoire, Brazil, and Cameroon each lose about 37 percent of their export revenue (table E-2).

A similar pattern is displayed in the results for tea. Two countries, China and Malawi, register large gains in export revenue, while the exporters together lose 11.5 percent of export revenue (table E-3).

Table E-1--Effects of policy liberalization on revenue of coffee exporters

Country	Export revenue--				
	Base period 1/	With developed-country liberalization	Change	With LDC liberalization	Change
	\$ million	\$ million	Percent	\$ million	Percent
Brazil	2,900	2,988	3.0	1,870	-35.5
Colombia	1,810	1,845	1.9	1,306	-27.8
Indonesia	832	849	2.0	657	-21.0
Cote d'Ivoire	676	689	1.9	601	-11.1
Mexico	577	594	2.9	344	-40.4
Guatemala	433	440	1.6	296	-31.6
El Salvador	431	439	1.9	447	3.7
Uganda	405	411	1.5	663	63.7
Costa Rica	314	319	1.6	256	-18.5
Kenya	311	314	1.0	194	-37.6
Zaire	259	265	2.3	323	24.7
Ecuador	285	291	2.1	451	58.2
Cameroon	234	237	1.3	193	-17.5
India	252	260	3.2	185	-26.6
Others	1,074	1,142	6.3	201	-81.3
Total	10,795	11,083	2.7	7,981	-26.1

1/ Base period = 1984-86 average.

Table E-2--Effects of policy liberalization on revenue of cocoa exporters

Country	Export revenue--				
	Base period 1/	With developed-country liberalization	Change	With LDC liberalization	Change
	\$ million	\$ million	Percent	\$ million	Percent
Cote d'Ivoire	1,213	1,234	1.7	752	-38.0
Ghana	472	475	0.6	419	-11.2
Brazil	669	699	4.5	420	-37.2
Malaysia	290	295	1.7	231	-20.3
Cameroon	230	235	2.2	141	-38.7
Nigeria	183	187	2.2	146	-20.2
Ecuador	174	181	4.0	288	65.5
Others	560	566	1.1	239	-57.3
Total	3,784	3,872	2.3	2,636	-30.3

1/ Base period = 1986.

Table E-3--Effects of policy liberalization on revenue of tea exporters

Country	Export revenue--				
	Base period 1/	With developed-country liberalization	Change	With LDC liberalization	Change
	\$ million	\$ million	Percent	\$ million	Percent
Sri Lanka	318	319	0.3	262	-17.6
India	306	307	.3	220	-28.1
Kenya	179	179	0	100	-44.1
China	158	158	0	240	51.9
Indonesia	121	121	0	115	-5.0
Malawi	58	58	0	117	101.7
Bangladesh	43	43	0	30	-30.2
Total 2/	1,238	1,242	.3	1,096	-11.5

1/ Base period = 1986. 2/ Total includes only countries listed.

The distribution of losses and gains among exporting nations derives from each country's position during the base period. The countries with the heaviest taxes initially have the greatest production response to liberalization. The production increase in these countries is sufficient to offset the international price decline, and leads to a rise in trade revenue. In the countries with relatively low taxes on production, liberalization generates relatively small increases in production, and trade revenue falls. A country which initially subsidizes its producers will reduce its production quantity, so its trade revenue must also fall.

Political judgments on whether to support various forms of agricultural trade liberalization will depend on how liberalization affects government revenue, trade revenue, producer welfare, and consumer welfare. Our analysis to date has focused on trade revenue, since the expectation of increased revenue has been used as a justification for reduced government intervention in LDC's.

Box 2: Industrial Economy Tariff Escalation In Tropical Products

Many industrial market economies (IME's) employ tariff escalation, the practice of levying higher import tariffs on commodities in processed form than in the form of raw materials (table B-2). Tariff escalation in commodities exported mainly by LDC's and imported by IME's, such as tropical beverages, reduces the potential value added of agricultural products coming from developing countries, and hurts their processing sectors.

IME's do not deliberately set out to harm LDC's, but they often want to protect their domestic industries from foreign competition or to raise government revenue. However, tariff escalation causes higher consumer prices in IME's and reduces consumer welfare. The government revenue gain and the increase in domestic processor profits are typically less than the consumer economic losses from tariff escalation. The LDC's processing sector also loses because IME demand is in turn dampened.

We use the SWOPSIM modeling framework to simulate removing IME economy tariffs on cocoa (beans, liquor, and butter) and coffee (beans, roast, soluble). When IME's (Japan, the EC, the United States, and an aggregate) remove these tariffs, the respective international prices increase, consumer prices in the importing nation decrease, and trade expands.

Exporters of tropical beverages, as a group, would experience lower trade revenues if the policies they employed in the base period were removed. Despite the overall pattern, several countries would increase trade revenue. Most countries would increase trade revenue if they were the only one to liberalize, because larger production by a single country seldom affects international prices. The position any particular country takes on liberalization in these markets requires detailed review of its potential to improve trade revenue, as well as a balancing of the other variables affected by policy reform.

Reference

1. Mabbs-Zeno, Carl, and Barry Krissoff. "Tropical Beverages in the GATT." Paper presented at the World Bank/OECD Symposium on Implications of Agricultural Trade Liberalization for Developing Economies, Paris, Oct. 5-6, 1989.

Table B-2--Representative tariff schedule for specific tropical products

Commodity	United States	Japan	European Community
Tea			
Bulk	0	2.5	0
More processed	0	14	5
Soluble	0	8	12
Coffee			
Raw	0	0	8.5
Roasted	0	20	12.5
Soluble	0	14	9
Cocoa			
Raw	0	0	0
Paste	0	5	11
Butter	0	0	8
Powder	76.3	15	16
Candy bar	0	20	12 1/
Citrus-Oranges			
Raw	5.1	20-40 2/	4-13
Frozen orange juice	25	25	13
Jams and jellies	0	28	18

1/ Additional duty dependent on ingredients.
2/ Dependent on season.

Based on our simulations, cocoa- and coffee-producing nations respond to increased demand and process more. Developing-country cocoa and coffee export revenue increases 2.4 percent (\$380 million) when tariffs are removed. Brazil increases its cocoa and coffee export revenue by 4.5 and 3.0 percent (\$30 and \$88 million), respectively. Total processing export revenue increases 21.5 percent, and bean export revenue increases marginally. The model shows that most LDC's, and especially their processors, benefit from IME tariff liberalization. [Liana Neff (202) 786-1680]

Coffee Prices Not Perking Up

by
M. Elena Pomar*

Abstract: The International Coffee Agreement (ICA), intermittently regulating the international coffee trade since 1962, partially collapsed last October. The ICA remains as the international coffee trade administrative pact, but its price and trade quota regulating functions were terminated. The reason for this is a disagreement between the member country exporters and importers on prices and the range of coffee grades made available under the Agreement. The immediate effect was a serious drop in international coffee prices and the consequent decline in export earnings of coffee exporters, most of them heavily indebted developing nations. In the longer run, if the price and trade quota regulating provisions of the Agreement are not reintroduced, coffee production is likely to fall and real prices to rise above current levels.

Keywords: International Coffee Agreement (ICA), International Coffee Organization (ICO), ICO Council, commodity agreements, coffee trade, coffee prices, trade quotas, export earnings.

The International Coffee Agreement (ICA) is still in effect. The quota system is not. A common misconception is that the ICA collapsed on July 3. As of that date, the Agreement's price-regulating functions were terminated, but its administrative functions remain in effect. The ICA, as an administrative pact, has been extended for 2 years, starting last September 30. However, without export quota controls the world coffee market has changed drastically.

The 2-week negotiations of the International Coffee Organization's (ICO) 74-member council ended in London on October 6, with provisions to pave the way for a new international agreement. But, no date was set for reinstatement of the coffee export quota system. What are the prospects for the coffee market without an export quota system? The immediate effect was that by October coffee prices plummeted to a 14-year low as, in the absence of ICA production controls, member producing countries have built up sizable stocks.

What International Commodity Agreements Are All About

The ICA is one of 40 international commodity agreements, covering 13 commodities, negotiated since 1931. The goals of such agreements, negotiated by major exporters and importers, are to stabilize international prices for the covered commodities, raise export earnings for producing countries, and provide a stable supply of these commodities.

Most such agreements consist of one to three components: (1) an export quota system; (2) multilateral long-term contracts that control minimum import price and quantities and set maximum export levels; and (3) a buffer stocks system that manipulates commodity stocks as a speculative operation (as in the case of the International Cocoa Agreement) (10).

There have been six agreements with economic provisions for agricultural commodities in recent years covering coffee, cocoa, rubber, sugar, and dairy products. In 1986, cocoa, olive oil, and international wheat agreements were renegotiated, and in 1987 natural rubber and international sugar agreements were reached (7). These agreements experience differing degrees of success in their negotiation or implementation stages. The International Sugar Agreement does not currently contain economic provisions, such as prices and stocks. The Cocoa Agreement countries failed to get the provisions implemented due to disputes between exporters and importers in 1986 and the inadequacy of the buffer stock regulations. There are no price stabilization mechanisms in the current wheat and olive oil agreements.

Coffee Trade Regulated

Coffee trade has been regulated to some extent since 1940, when the Inter-American Coffee Agreement established controls over coffee trade in Latin America through prices and quotas. There were no regulating agreements for coffee between 1948 and 1958, when the United States convened the first Coffee Study Group meeting in Washington, DC, to stabilize coffee prices. During this period, the Kennedy Administration showed much interest in U.S. support for the

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development of the Latin American region. The Alliance for Progress for Latin America was created, and the fluctuations of coffee prices were viewed as a barrier to economic development of this major producing region (9).

After 4 years of research, the International Coffee Agreement (ICA) was formed, representing 95 percent of world coffee producers and 85-90 percent of consumers. The creation of the ICA has been described as motivated by political concerns. The United States was concerned that low coffee prices would politically destabilize the already restless Central and South American regions. Likewise, European Community (EC) countries were interested in a functioning ICA to be able to show support for their former colonies in Africa (2).

Since its establishment in 1962, the ICA has been renewed four times, in 1968, 1976, 1983, and 1989. Its export quota system was only occasionally enforced. Periods in which the economic provisions of the agreement were enforced, and hence quotas were in effect, were 1963-1972, 1980-86, and 1987 through June 30, 1989 (3 and 4). The most recent ICA quota system, operating since 1980/81, was designed to keep coffee prices within a range of \$1.15-1.45 per pound. Prices remained in the middle of this range, and only occasionally went beyond it.

The Recent ICA Negotiations: What Happened?

The ICA price-regulating functions, in force since 1983, were terminated at the special ICO Council meeting on July 3, 1989. As an administrative pact, the ICA was extended for 2 years, starting on September 30, 1989. However, the export quota system, in place since the last renegotiations, terminated when members failed to agree on the ICA economic provisions. Two weeks of negotiations by the ICO's 74-member Council ended in London on October 6, with provisions for future negotiation of the quota system. What caused the negotiations to falter and the quota system to collapse?

There were two basic issues which caused a stalemate in the Agreement negotiations between producers and consumers. The first was the export quota system. Quotas became the major issue when the time came to renew the 1983 agreement. This system (allocating market shares more on a historical than market basis) and prices have been the only regulating components of the ICA, since there were no production or stock controls in the past.

Major importing ICA member countries rejected the "status quo" quota system, since it created a two-tier price market. Discounted sales of up to 25-50 percent were reportedly made by ICA exporters to non-members, the USSR, other Eastern block, and Asian countries. With no control of this problem, there is little economic incentive for an importing

country to belong to the Agreement when non-member countries can purchase coffee at much lower prices.

The other point of contention was importers' request to include in the Agreement a wider variety of coffee grades, mild arabicas (produced mostly by Colombia and Central America) as opposed to unwashed arabicas (produced by Brazil) and robustas (produced mostly by Africa).

There was a no-quota market period for 1-1/2 years in 1986-87. The United States and other countries started then importing different quality coffee (8). The demand for milder types rose, and the price gap between these types and robustas and unwashed arabicas widened. As the coffee quota resumed, its formula was imposed again.

The quantity and quality of coffee made available under the Agreement changed according to the exporting countries' level of stocks, since 70 percent of coffee available is based on negotiated criteria, and 30 percent on stock levels.

Importing countries were forced again to accept coffee grades regulated by the ICO. This turned out to be a big dis-senting point in June negotiations, even though its importance was not as well-defined prior to that time. Requests for access to better quality coffee for importing countries acquired an equal importance to the two-tier price system and led to the negotiations' stalemate.

What are the countries' positions, and how do these two points tie in to the renewal of the 1983 agreement being unacceptable to the United States and other importers?

Countries' Positions During the Recent Negotiations

The negotiations did not lead to an agreement on economic provisions, it will be recalled, because of the rejection by some countries of the "status quo" export quota provisions. The United States, in particular, asked for a resolution to the two-tier pricing system and an increase in availability of milder quality coffees. The United States is the largest single ICA coffee consumer (30 percent), though its consumption has been declining since 1962. The trend is a shift to soft drinks.

Brazil is the world's largest coffee producer and the largest export shareholder under the quota system. With more than a 30-percent share of the ICA export quota, its production consists mostly of unwashed arabicas and robustas. Brazil's position, as well as that of the other robusta producers during the last negotiations, was to defend its current share of the market. The robusta producers were interested in an extension of the 1983 agreement, with controls on exports to non-members. But they also rejected a system that would adjust the quantity and quality of quota according to price move-

ments of all four types of coffee, instead of the existing "other milds" (mainly mild arabicas) and robustas.

The EC, which as a group takes about 47 percent of world coffee imports, proposed a "universal quota"—a single quota for members and non-members, or a universal membership system—with 95 percent of the coffee trade occurring among members. These proposals were accepted by the United States, but rejected by producing countries, which feared that the coffee prices would fall. Producer objections and problems with the control of barter sales to non-member countries in the Eastern Block countries, ruled out such proposals during the October negotiations. The EC then sided with Brazil, the Colombian mild producers, and robusta producers in favor of the "status quo," if a more favorable solution could not be reached (8).

"Other milds" producers, including Mexico, Central America, and other coffee producers in South America and Asia, were vying for a higher market share. They advocated resolving the two-tier price market and a redistribution of the quota system giving the mild arabicas an allocation of 48 percent of the global quota. Brazil refused this proposal, since its share of the global export quota would have fallen below 28 percent.

During the special 1-day Council meeting on July 3, the participating countries could not reach an accord on the quota system, and the meeting was suspended. It was too late then to draft proposals for a new agreement to be approved during the September ICO Council meeting. An administrative resolution was then adopted, and the way paved for future talks to tackle the Agreement's economic provisions.

Price and Market Implications

The demand for coffee is inelastic. Even small production or export quantity changes can result in large price swings. Production increases in the past raised stock levels, while prices remained controlled by ceilings and floors enforced by the ICA. What happens in the absence of an export quota system and a resulting oversupply? A short-term effect of the July 3 quota system collapse was a sharp drop in coffee prices. During the first week in October, coffee prices dropped to a 14-year record low, from \$1.30 a pound last June to less than 70 cents a pound. These prices are near or below production costs, resulting in economic losses for many coffee-producing countries.

Colombia's estimated loss during the current marketing year is around \$400 million, making its fight against narcotics even more difficult. For some countries, high inflation rates and large foreign debt servicing, paired with lower coffee revenues, could spell a disaster (5).

World coffee supplies vary according to biennial yield cycles, weather, agricultural credit availability, and input

costs. Coffee is also a labor- and capital-intensive crop. A low price no-quota market is likely to affect negatively the high price coffee farmers in Colombia, Venezuela, Guatemala, and El Salvador, as well as those not constrained by the quotas, particularly in Africa, receive.

What would happen if a no-quota system were to dominate the market and domestic price policies were liberalized? A recent ERS study of price liberalization within countries showed that for coffee producers and processors, liberalization of domestic policies for less developed countries would lower revenues in primary and processed products, owing to large drops in international prices (6).

Producer and Consumer Implications

The World Bank has recently released a study of the implications of the elimination of ICA quotas (7). The econometric model on which the study was based shows that coffee prices could be expected to be about 30 percent lower in 1990 without the quotas, and continuing to be low until the mid-1990's, when prices would be expected to be about the same with or without the quota. Most coffee exporters, with the exception of the larger exporters like Brazil and Colombia, lost revenue under a quota system in 1981-86, compared with a hypothetical no-quota scenario.

For the 1990-2000 period, export revenues for all ICA producers with a quota would be higher until the 1990's. After that, the no-quota scenario would generate higher export revenues from lowered world coffee production. For the same period, some low-cost producers, such as Indonesia, the Philippines, Papua New Guinea, Costa Rica, Cameroon, Rwanda, and Zaire would be better off without the quota system. Export revenues would be lost by Venezuela, Angola, El Salvador, Ivory Coast, Ethiopia, Brazil, and Colombia.

Consumers would benefit from low coffee prices for about 4 years. After that, coffee prices would be about the same with or without quotas. The long-run equilibrium prices would be slightly higher because of a decline in world coffee production. Continuing the quota system would cost consuming nations, according to this study, approximately 30 percent from price increases (7).

The World Bank study evaluates the effects of the ICA with and without quotas in 1981-86. It points out that the ICA had a price stabilizing effect in 1986, because exporting countries accumulated stocks that were released when the quotas were lifted in 1986. But the ICA does not have production or stock control provisions. During 1987, the ICO lowered international prices to a 20-year low, to reflect higher world coffee supplies. In addition, there are no long-term trends reflected for 1986 when production went down about 9 percent, and international prices rose due to a severe drought in Brazil in 1985. This destabilization, along with

no ICA stock regulations, could have affected the World Bank simulation results for 1990-2000.

With respect to the non-member country coffee market, a third economic model shows that the two-tier pricing system would continue as long as countries are unwilling to participate in the ICA marketing arrangement. It also shows that exports to non-member countries constitute a large proportion of export revenues for some exporting nations and that, because of this market, prices to non-member countries would always be lower than the free trade price and considerably lower than the ICA member prices (2).

Conclusions

It is difficult to speculate, based on the July 4 termination of the ICA export quota system, what turn the market is likely to take. Prices have fallen about 46 percent since then and, in spite of large supplies of coffee, exporting nations are not releasing stocks. Some large exporters are utilizing their reserves to cover production costs, and the market seems to give us glimpses of a very faint recovery for coffee futures.

Economic models suggest in the short run lower international coffee prices will cause considerable loss of revenue to producing countries, largely composed of developing countries. In 1988, Latin America produced approximately 65 percent of the world's coffee. Brazil, Colombia, and Mexico have been among the top 5 coffee-producing countries during the past 6 years, with coffee a major agricultural export. Most of these countries have large foreign debts and are dependent on export revenues to service the debts. Many of the smaller ICA producers, who started selling coffee to non-member countries, did so to increase their foreign trade earnings to be able to service their foreign debts (2).

Developing countries have to make difficult policy decisions to implement long-term adjustments to a non-quota market. If coffee production were to be adjusted to lower coffee prices, this could only mean a shift to other crops or an increase in the efficiency of coffee production. Crop diversification might be easier for countries with comparative advantage in other cash crops. However, because of the high capital investment needed to produce coffee, no substitution or crop diversification is likely to occur in the short run.

As the World Bank study points out, increasing efficiency may be difficult to achieve for producers who would lose export revenues for approximately 4 years. In the short run, these producers may face a difficult time finding credit to finance these operations. It would also be difficult for many countries with large debts to adjust their economy by devaluing their currencies any further. For these countries to cut their export taxes could mean, in the case of Colombia, a loss of as much as 50 percent of official export revenues.

With no quotas, consuming nations would benefit from low coffee prices in the short run and from imports of coffee quality of their choice. In the longer run, world coffee equilibrium prices would likely be higher, given the expected decrease in production in response to declining prices at the beginning of the no-quota period.

Economic consequences aside, political implications could be a considerable factor. Developing producing nations face further difficulties because of political instability, frequently paired with existing economic austerity programs. Would these nations be able to face a substantial reduction of export earnings? Will they be able to adjust in the face of escalating inflation, as in Brazil, and large social costs, as in Colombia's narcotics wars?

The way was paved during the October ICO Council meetings to allow for future talks on economic provisions to be added to the 1989 Agreement. However, a renegotiation of a new quota system is not expected in the near future, since it requires two lengthy steps: (1) negotiation of the ICA economic provisions; and (2) approval of member countries' governments before implementation. Given some implications of a non-quota market discussed above, the question remains: What are the chances of having the economic provisions of the Agreement reintroduced and coffee prices increasing?

References

1. Akiyama, T., and P. Varangis. *Impact of the International Coffee Agreement's Export Quota System on the World's Coffee Market*. World Bank Working Paper, WPS 148, 1989.
2. Bohman, Mary, and Lovell Jarvis. "The International Coffee Agreement: Economics of the Nonquota Market." Selected Paper presented at the Canadian Agricultural Economics and Farm Management Society Meetings, Montreal, Canada, July 1989.
3. International Coffee Organization. "Initial and Final Quotas of Exporting Members, Coffee Years 1963/64 through 1967/68," WP Agreement No. 13/88, February 1989.
4. _____. "Initial and Final Quotas of Exporting Members, Coffee Years 1980/81 through 1985/86," WP Agreement No. 13/88, February 1989.
5. Knight-Ridder Service. October 23, 1989
6. Mabbs-Zeno, Carl, and Barry Krisoff. "Tropical Beverages in the GATT." Paper presented at the World Bank/OECD Symposium on Implications of Agricultural Trade Liberalization for Developing Economies, Paris, Oct. 5-6, 1989.

7. "The Workings of the International Commodity Agreements: a Review." *The Courier*, No. 116. July-August 1989.
8. U.S. Dept. of Agric., Foreign Agricultural Service. *World Coffee Situation*, various issues.
9. Vogt, Donna. *International Coffee Agreement*. Report No. 84-224 ENR. Congressional Research Service, 1984.
10. World Bank. *World Development Report 1986*. New York: Oxford University Press, 1986.

New Technology Is Increasing Saltwater Shrimp Exports to the United States

by
Gary Vocke*

Abstract: The continuing transfer of shrimp farming technology and the technical know-how of pond management throughout the tropics and some temperate-climate countries are increasing world shrimp supplies. Farm output is gaining a larger share of total shrimp output. Imports now supply more than three-quarters of total shrimp consumption in the United States.

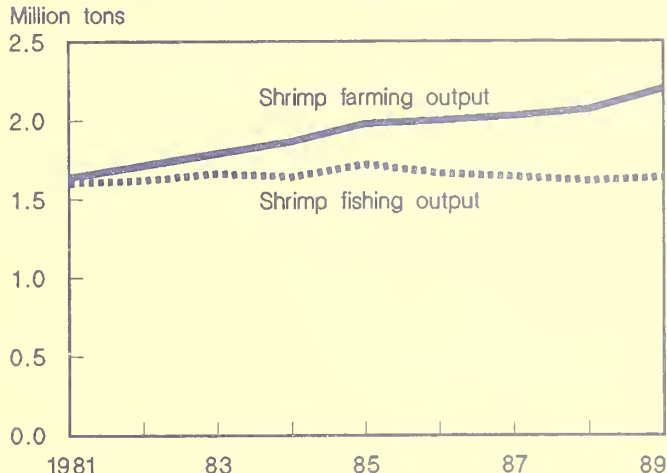
Keywords: Shrimp farming, exports, trade.

Scientific advances are allowing shrimp farmers to compete with ocean-harvested shrimp in world export markets. Although farm shrimp are the same species as wild shrimp caught by fishermen, they are often cheaper and of higher quality. It is easier to maintain quality with farm shrimp because they can be moved immediately to the packing plant. Ocean-harvested shrimp are held on ice for extended periods on the fishing boat before delivery to the packing plant. Shrimp farmers are also more reliable suppliers to export markets because they are not dependent on fluctuating availabilities of shrimp as are fishermen. Export earnings are a force behind the rapid development of shrimp farming in many countries.

Aquaculture farmers, mostly in Asia and Latin America, produced more than 26 percent of the shrimp placed on the world's markets in 1989 (8).¹ This is up from only 2 percent in 1981 (figure G-1). While ocean-harvested shrimp output has been relatively constant, farm output has grown. The rising contribution of farm shrimp to world supplies has been made possible by new technological advances and transfer.

Traditionally, shrimp were incidentally trapped in ponds for growing out with fish. However, high export prices encouraged farmers to raise shrimp yields in the late 1970's and early 1980's by stocking ponds with young shrimp

Figure G-1
**Shrimp Farming's Contribution to
World Output Is Increasing**



caught by fishermen in coastal waters. As stocking rates rose, artificial feeding became necessary, and pumps and aerators were needed to maintain water quality.

However, the natural supply of young shrimp for stocking fluctuates, making it risky for farmers who invest in equipment for intensified production, and businessmen investing in processing plants. To have facilities underutilized is costly. This need for a reliable supply of young shrimp to stock the ponds created incentives for domesticating saltwater shrimp.

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¹ Numbers in parentheses refer to references at end.

Hatcheries Needed for Domestication

Increasing demand for young shrimp to stock ponds led to the spread of hatcheries for spawning pregnant females captured in the wild. These hatcheries were developed by Japanese and U.S. researchers.

The next step in domestication was to gain control of the breeding cycle. Some commercially important saltwater shrimp species do not mature in captivity. They have an organ in their eyestalk which produces a hormone that inhibits sexual maturity. Researchers learned that removal of one eyestalk reduces the level of this hormone enough that their ovaries will develop and they can then be mated.

The number of hatcheries raising and mating shrimp in captivity is increasing, but because the process is costly, most hatchery-spawned shrimp are from captured females. These shrimp are still more costly than the young shrimp caught by fishermen. The higher cost of hatchery shrimp is due, in part, to the expense of feeding them through a series of larval molts.

The eggs of the captured females hatch into nauplii, which carry a yolk sac for nutrition. These nauplii soon change into zoea, which eat single-cell algae produced at the hatchery. The zoea change into mysis, which are fed algae and nauplii of brine shrimp (another species of shrimp) also produced in the hatchery. The mysis change into miniature adults called postlarvae, which are used to stock growout ponds.

Growing these live plant and animal foods in the hatcheries is expensive, requiring both skilled labor and equipment. Replacing these live feeds with lower-cost, grain-based feeds is difficult, because nutrients in manufactured feeds leach into the water before being eaten. Hatchery operators are now interested in microcapsules for particles of manufactured feed, with a membrane that will only break down inside the larvae.

The challenge is to develop a membrane that will break down quickly enough in zoea. Food passes through the zoea in just 7-12 minutes. In contrast, food takes about three hours passing through the mysis. Researchers are now developing a membrane that breaks down after only 4 minutes (3).

This feeding advance, and other developments, will make hatcheries more efficient and economical. These advancements also create the potential for breeding programs to improve rate of growth, feed conversion, disease resistance, and size. With genetic improvements, hatchery postlarvae would become increasingly valuable to the farmer.

Grow-Out: A Range of Practices With New Technology

Grow-out practices vary widely. At one extreme are capital-intensive farms requiring technical expertise and artificial feed. At the other extreme, the traditional shrimp farming ponds along bays and tidal rivers require little management and no artificial feeding; all the nutrition is from natural sources in the pond (table G-2).

India and Indonesia are good examples of countries with traditional shrimp ponds in coastal areas, often in mangrove swamps. When the coastal water has a high density of young shrimp, farmers open the gates to their ponds, impound these shrimp, and grow them to maturity.

The high value of shrimp in world export markets has led to widespread construction of these ponds in the mangrove swamps of a number of tropical countries. The loss of these ecologically valuable swamps to low-producing shrimp ponds is controversial.

Despite the low density of shrimp in these traditional ponds, water needs to be constantly changed by the tide to avoid a buildup of bacteria and algae that would deplete oxygen supplies for the shrimp. With tidal exchange of water, these

Table G-1--Three species dominate global saltwater shrimp farm production

Species	Share 1/ Percent	General comments
Giant tiger shrimp <i>Penaeus monodon</i>	33	Common in Southeast Asia and Taiwan. Largest commercially available shrimp. Does not readily mature and spawn in captivity.
Chinese white shrimp <i>Penaeus chinensis</i>	28	Also known as <i>Penaeus orientalis</i> , this species is common in PRC. It matures and spawns in captivity. Tolerates colder temperatures.
Western white shrimp <i>Penaeus vannamei</i>	10	Common in Ecuador and Western hemisphere. It will mature and spawn in captivity more readily than giant tiger shrimp.
Other	27	

1/ From (9).

Table G-2--Higher yields require more inputs, smaller ponds, improved water management

Item	Extensive	Semi-intensive	Intensive 1/
Yield/ha	.05-.5 ton	.5-6 ton	10 ton is common
Stocking density/ha	Less than 10,000	50-100,000	150-200,000
Feed	Natural food	Artificial feeds	Artificial feeds
Pond size	1 ha or more	.5-1.0 ha	.1-.5 ha
Water management	Tidal	Pump + Aerator	Pump + Aerator

1/ Experimental "super-intensive" shrimp farming can yield 50 tons/ha per year (9).

Source: (13).

coastal ponds have low costs, but also low yields. To increase yields, farmers must increase the density of shrimp in the pond with young shrimp caught by fishermen or from hatcheries.

Increasing the stocking density is part of the package of practices required as farmers move from traditional ponds to semi-intensive production. Increased density requires pumping to control water exchange. For pumping to be most effective, ponds must be smaller. These smaller ponds are usually constructed just beyond the swamps to avoid flooding during storms. Thus, more intensive production can slow the loss of mangrove swamps.

Shrimp yields of 0.1-0.3 ton/hectare (ha)/year are possible without fertilization in these smaller, better managed ponds, and 0.6-1 ton/ha/year with fertilization to increase the growth of the natural foods in the pond (6). As stocking increases further, artificial feeds become increasingly important in supplementing natural foods.

Feed becomes a larger share of expenses as production intensity increases. The most expensive shrimp feeds cost \$750 per ton and more, because of heavy use of fish proteins, such as squid and fishmeal. However, shrimp feed costs can be reduced to \$300-\$400 per ton when low-cost plant protein, such as soybean meal, is substituted for part of the fish protein (19).

As the intensity of production and feeding increases, pond water is enriched with nutrients from waste products and uneaten feed. Not all of the feed is eaten by the shrimp. The feed not eaten promotes the growth of bacteria, algae, and microscopic zooplankton on which shrimp feed. However, if bacterial and algal growth is excessive, they can reduce oxygen in the water, which in turn reduces shrimp growth. In addition, as oxygen is depleted, the bacterial decomposition of the excess feed and shrimp wastes at the bottom of the pond shifts from aerobic to anaerobic respiration, producing byproducts such as hydrogen sulfide that are toxic to shrimp.

To cope with these water quality problems, pumping must increase. As the intensity of production increases, the pond water that must be exchanged with clean water each day rises from 5 percent with tidal water exchange to 30-40 percent with semi-intensive production, to 60-100 percent with intensive production. In addition, aerators are needed to add oxygen to the water and to move highly-oxygenated surface water to the pond bottom.

Intensification of production requires very careful management of water quality. If water quality is very far from optimal, the shrimp will be stressed; their growth will slow; and they will become susceptible to disease.

High shrimp yields require artificial feed. Intensive farming in Taiwan consistently yields 20 ton/ha/year on some farms (6). In Japan, yields 50 percent higher than in Taiwan are achieved. Under intensive production, where the farmer relies on feeds; shrimp require 2-3 kg of feed to produce 1 kg of live shrimp (7), about the same feed conversion as present-day broilers.

Enormous increases in shrimp yields above those of traditional coastal ponds in the tropics are possible, but total costs also rise (not just those of feeding, but other costs, such as pumping and aeration). Cost data from the mid-1980's ranked Ecuador's extensive farmers at \$.60-\$1.10 per kg of shrimp, the intensive farmers of Taiwan at \$4.60-\$5.20 per kg, and Japan's super-intensive farmers at \$15.90-\$25.50 per kg (18).

Highly intensive farmers will have difficulties if the rapid expansion of low-cost, semi-intensive farming in China, Indonesia, and elsewhere in Asia results in shrimp supplies outpacing demand, forcing down market prices.

Shrimp Farmers Face Risks and Competition

Diseases are a constant risk to shrimp farmers and their country's exports. For example, 1988 disease losses in Taiwan cut the country's exports from 50,000 tons in 1987

to less than 8,000 tons in 1988 (10). Disease was widespread because the ponds were so close together. Disease was passed easily between ponds with the exchange of water (5).

Also risky is reliance on ocean-caught young shrimp for stocking ponds. For example, in mid-1989, reportedly half the ponds in Ecuador were empty because of a shortage of young shrimp caused by shifting ocean currents (11). When Ecuador's shrimp industry is at half capacity, the nation's economy can be affected, because shrimp is the country's second most important export.

Shrimp farmers also face price risks. For example, in 1989 giant tiger shrimp prices in Southeast Asia fell from \$8.50 to \$4.50 owing to short-run fluctuations in supplies (12). Both traditional and low-intensity farmers have lower production costs than shrimp fishermen. However, shrimp fishing costs are less than those of the more intensive farmers, such as are common in Taiwan.

Saltwater shrimp farmers also face competition from other species of shrimp. Some farmers, for example, raise freshwater shrimp, which compete with saltwater shrimp in some markets. The most important is the giant Malaysian prawn, *Macrobrachium rosenbergi*, native to the Indo-Pacific region. This freshwater shrimp is easy to mate in captivity. There was, however, little progress to domesticate this species until a few years ago, because of difficulties raising larvae in hatcheries. Then Malaysian researchers discovered that, although adults live in fresh water, their larvae require brackish water to molt and develop.

With this discovery, hatcheries were then able to raise postlarvae. Thailand, for example, has made especially rapid progress in the development of its freshwater shrimp industry following the expansion of its hatcheries (14). The giant Malaysian prawn requires warm water, so expansion of its production in temperate areas, such as in the United States, has been slow.

Temperate Climate Farmers At a Disadvantage

Most commercially raised shrimp grow faster and have better feed conversion in warm water. Thus, tropical farmers will retain an export advantage in world markets because they can grow shrimp year round. For example, in Japan, where intensive shrimp farming began, shrimp farming cannot be expanded because only the southern part of the country is warm enough. Even in northern Taiwan, winter temperatures are too cold for the giant tiger shrimp, the most commonly grown species.

A temperate climate also gives the United States a short growing season. In the continental United States, the growing season for shrimp is 7-9 months in the Rio Grande Val-

ley and southern Florida, 5-7 months throughout the lower South, and 4 months or less in the Midwest (1). In Hawaii, however, shrimp can be grown year round.

Some U.S. growers headstart postlarvae in greenhouse nurseries while spring temperatures are still cool. This way, U.S. farmers can get two crops of moderate-sized shrimp per season. Greenhouse nurseries are expensive, however, making it difficult for U.S. farmers to compete with tropical farmers. In tropical Ecuador, for example, year-round cropping gives three harvests of full-sized shrimp per year.

Farm Shrimp Production Shifts U.S. Imports

U.S. shrimp consumption has increased 80 percent during the 1980's. Much of this increase was possible because of imports (figure G-2). Imports now supply more than three-quarters of total consumption, up from a little less than two-thirds in the early 1980's (17).

Figure G-2

Rising U.S. Shrimp Consumption Depends on Imports

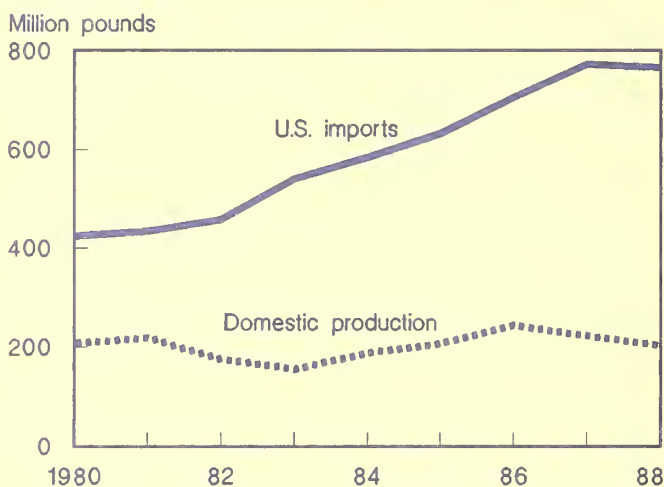
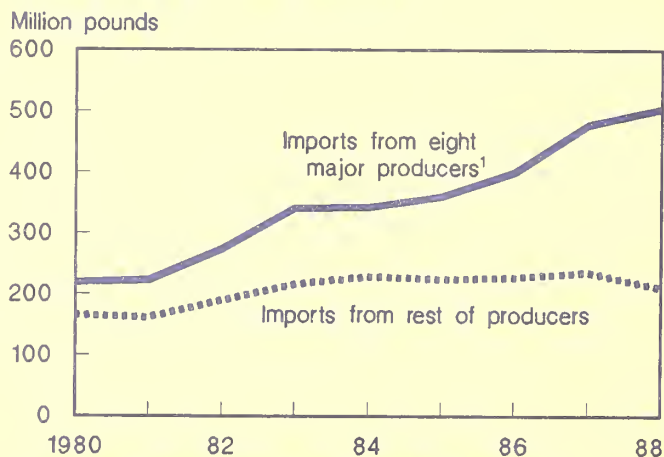


Figure G-3

Major Farm Shrimp Producers Gain Large Share of U.S. Imports



1/ China, Ecuador, Taiwan, Indonesia, Thailand, Philippines, India, Vietnam.

Table G-3--Major producers of farm shrimp

Country	Share of world farm shrimp output 1/	Share of world growout area 1/	Yield 1/ Tons/ha	Share of world hatcheries 2/
	Percent	Percent		Percent
China	29	13	1.1	8
Indonesia	16	23	.4	2
Thailand	16	7	1.1	28
Philippines	9	18	.2	11
Ecuador	8	6	.6	3
Vietnam	5	15	.2	na
India	4	5	.4	--
Taiwan	4	--	5	41
Subtotal	91	74	(ave.) .5	93

na = Not available. -- = Less than 1 percent. 1/ From (8). 2/ From (9).

The share of U.S. imports from the eight largest farm shrimp producer countries listed in table G-2 has more than doubled during the 1980's. These countries, which produce more than 90 percent of the world's farm shrimp, have increased their share of U.S. imports from one-quarter in 1980 to more than one-half in 1988 (17), mostly at the expense of countries with shrimp-fishing industries, such as Mexico (figure G-3).

Mexico's large shrimp fishing industry allowed it to be the leading U.S. supplier of shrimp in the early 1980's. China and Ecuador now lead in exporting shrimp to the United States with their rapid expansion of shrimp farming. Mexico's market share has dropped from 35 percent to 13 percent.

Despite Mexico's favorable climate and natural supplies of young shrimp for stocking ponds, the country has lagged in shrimp farming. Mexico's laws prohibit private investors, both domestic and foreign, from participating in this industry, which is reserved for fishery cooperatives. These have shown little interest in shrimp farming (16).

China is the world's largest producer of farm shrimp, and with its very large increase of exports in 1988, has surpassed Ecuador in exports to the United States. Because much of China's shrimp farming is in temperate areas, its farmers raise only one crop per year. Most Chinese shrimp ponds are stocked with hatchery-produced postlarvae from captured pregnant females.

The Ecuadoran shrimp industry is based on ocean-caught postlarvae. The industry is becoming more intensive as ponds are increasingly stocked at rates high enough to require artificial feeds, and pumps and aerators to manage water quality. With Ecuador's tropical climate, shrimp are harvested the year round.

Taiwan's share of U.S. imports dropped from 8 percent in 1987 to 3 percent in 1988, because disease greatly reduced production. Taiwan has been a leader in using new technology, including hatchery postlarvae and manufactured feeds, to raise productivity. Although Taiwan's shrimp yields are

very high by world standards, their high cost makes it difficult for them to compete with low costs elsewhere.

Conclusions

The continuing transfer of shrimp farming technology and the technical know-how of pond management throughout the tropics and some temperate-climate countries are increasing world shrimp supplies. This expansion will create many business opportunities, including supplying pumps and aerators to modernize shrimp ponds; establishing hatcheries and feedmills; and using value-added processing before export.

A series of scientific and technical advances in control of reproduction and encapsulated feeds are making hatcheries more efficient and economical. These advances create a long-term potential to improve farm shrimp performance with genetic selection, because firms can develop breeding lines. At present, though, the shrimp supplied by hatcheries are still unimproved, wild animals.

In the near term, cost reductions can be achieved through substitution of plant protein for fish protein in the commercial feeds, and by improving water quality as stocking density increases.

References

1. Chamberlain, George. "Grow-out Limitations." *Coastal Aquaculture*. Texas Agricultural Extension Service. Vol. II, No. 3 (July 11, 1985).
2. _____. "Intensive Pond Management." *Coastal Aquaculture*. Texas Agricultural Extension Service. Vol. IV, No. 1 (June, 1987).
3. _____. "Shrimp Hatcheries." *Coastal Aquaculture*. Texas Agricultural Extension Service. Vol. V, No. 1 (January 1988).
4. Food and Agriculture Organization of the United Nations (FAO). *Fishery Statistics*. Rome. Vol. 64. 1989.

5. Hougart, William. Oceanic Institute of Hawaii. Personal communication.
6. New, Michael B. *Feed and Feeding of Fish and Shrimp*. Food and Agriculture Organization of the United Nations. Rome. 1987.
7. Persyn, Harvey O. *Research & Development*. June 1984.
8. Rosenberry, Bob. *World Shrimp Farming 1989*. San Diego: Aquaculture Digest, January 1990.
9. _____. *World Shrimp Farming 1988*. San Diego: Aquaculture Digest, February 1989.
10. _____. *World Shrimp Farming*. San Diego: Aquaculture Digest, May 1989.
11. _____. *World Shrimp Farming*. San Diego: Aquaculture Digest, July 1989.
12. _____. *World Shrimp Farming*. San Diego: Aquaculture Digest, September 1989.
13. Solis, Noel B. "Farming of Tiger Prawn in the Philippines." SEAFDEC Newsletter. Southeast Asian Fisheries Development Center. Vol. 11, No. 4.
14. "UN Recognizes Thai Advances in Shrimp Culture Techniques." *Bangkok Post*, Sept. 13, 1989.
15. U.S. Dept. of Agric., Econ. Res. Serv. *Aquaculture Situation and Outlook Report*. March 1989.
16. U.S. Department of Commerce. *Aquaculture and Capture Fisheries: Impacts in U.S. Seafood Markets*. Washington, DC. April, 1988.
17. _____. *Fisheries of the United States, 1988*. Washington, DC, May 1989.
18. Wickens, J. F. "Prawn Farming Today: Opportunities, Techniques, and Developments". *Outlook on Agriculture*. Vol. 15, No. 2. 1986.
19. Woods, Marcia. "Pond-Raised Shrimp Thrive on Sugar-cane". *Agricultural Research*. Agricultural Research Service. USDA. February 1989.

Egypt Increases Its Exports of High-Value Products As Diversification Becomes Profitable

by
John B. Parker*

Abstract: Egypt is diversifying its exports of high-value agricultural products, relying less on cotton exports than in the past. Horticultural crops like oranges, potatoes, jasmine products, garlic, onions, melons, and green beans have become significant export items, favored in some cases by special market niches abroad.

Keywords: Egypt, exports, high-value products.

Egypt's agricultural exports have become more diversified in recent years, with the value of exports of fruits, vegetables, and horticultural specialties surpassing cotton, the traditional leader, in 1988. The gap is expected to widen further in 1989, as horticultural exports rise to an estimated \$375 million and cotton exports fall to about \$200 million. Even with a slight rebound in cotton exports, it appears that the value of horticultural exports may double that of raw cotton in the early 1990's.

Gains in high-value product exports may reduce the volatility of Egypt's farm export earnings, traditionally dependent primarily on cotton. Agricultural exports peaked at \$984 million in 1974, when cotton accounted for 72 percent of the total, but fell to an average of \$693 million during 1981-84. Farm exports recovered to \$842 million by 1987, before a steep decline in cotton sales reduced total exports to \$717 million in 1988.

During most of this period, the value of Egypt's exports of all horticultural products has increased steadily, reaching \$152 million in 1986, \$319 million in 1987, and about \$358

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million in 1988. By 1988, leading horticultural exports were oranges, potatoes, jasmine products, garlic, onions, melons, and green beans. Large gains have also occurred for exports of some minor items, like tomatoes and canned beans. If further gains from fruits and vegetables could be combined with a rebound in cotton exports, Egypt might be able to increase agricultural exports to over \$1 billion annually in the early 1990's.

The European Community (EC) is Egypt's major market for agricultural exports, closely followed by the USSR. Each market usually buys over \$200 million of Egyptian farm products annually. The third major market is Japan, with purchases of over \$75 million annually. Czechoslovakia and Saudi Arabia are close for fourth place, each with purchases of over \$50 million annually. Other important markets with annual purchases exceeding \$10 million include East Germany, the United States, Hungary, Poland, Bulgaria, Romania, Yugoslavia, Kuwait, and Lebanon. Growth in exports to Jordan, Iraq, and Sudan has been rapid from a small base.

Vegetable Exports Up Sharply

Exports of vegetables and products have increased sharply, from about \$61 million in 1986 to nearly triple that value by 1988. Potatoes, onions, garlic, and many new items have been prominent in the gains. Wide fluctuations for some high-value items have been offset by gains in others. For example, a striking rise in garlic exports to 34,000 tons in 1987 was followed by a modest decline in 1988 that was partially cushioned by greater exports of tomatoes, potatoes, and beans.

Exports of vegetables to Europe, Saudi Arabia, and Kuwait increased rapidly during 1986-89. Egypt became a supplier of a number of vegetables to the EC in the late 1980's. Sales to the EC have been aided by special concessions that give Egypt's horticultural products a 45 percent reduction in EC tariffs. EC imports of fresh green beans from Egypt increased markedly in 1987 to 14,082 tons, for \$10 million, double the 1984 level. EC imports of canned fava beans from Egypt increased in recent years as demand rose, especially from workers from the Middle East. EC imports of Egyptian sweet potatoes, broccoli, green pepper, and artichokes are relatively new.

Large Gains in Exports of Potatoes

Egyptian exports of potatoes nearly doubled between 1986 and 1988, mostly because of larger sales to the United Kingdom and Saudi Arabia. Potato exports rose to about 185,000 tons in 1988, up from 133,000 tons in 1987 and 107,740 tons in 1986. Export value increased from only \$22 million in 1986 to \$74 million in 1988, aided by higher prices. Saudi Arabia imported 29,830 tons of Egyptian

potatoes in 1988 for \$5.8 million, double the 15,925 tons imported in 1987 for \$4.5 million. Efforts to get a larger share of the Saudi market caused Egypt's cooperative exporters to drop the price of their potatoes from \$283 to \$198 per ton.

Production of potatoes, onions, and garlic has benefited from successful intercropping with cotton. Onion production increased to over 1 million tons in 1988, a third above the 1984-87 average, while garlic production more than doubled to 234,000 tons.

Egypt's exports of onions doubled in 1987, reaching 41,168 tons for \$25.4 million, up from \$6.3 million in 1987, including large gains in exports of dehydrated onions to the EC and the USSR. Garlic exports more than doubled, rising to more than \$50 million, consisting largely of dehydrated garlic to the EC and Soviet Union. Garlic exports reportedly declined in 1988 as domestic demand increased and production showed little change.

Tomato Exports Benefit from Technology And Marketing Advantages

Exports of tomatoes reached 23,398 tons valued at \$11 million in 1987, double the 1982 level. Further gains occurred in 1988, with volume estimated at 33,000 tons and value at about \$17 million. Saudi Arabia's purchases increased 21 percent in 1988 from the 17,958 tons exported in 1987 for \$8.2 million. Kuwait was the second major market. Duty-free exports of tomatoes to Arab Common Market customers in Jordan, Lebanon, and Iraq increased in 1988 and 1989.

Greater use of improved varieties accelerated because of the University of California project to improve tomato production and marketing. However, exports remain a small share of tomato production, estimated at 4.7 million tons in 1988.

Gains in Citrus Exports Underway

Gains in exports of oranges have also been a key factor in recent growth in horticultural exports. Exports of oranges increased from 167,000 tons in 1987 to an estimated 220,000 tons in 1988, mostly because of larger shipments to the USSR, Eastern Europe, and Saudi Arabia. The value of orange exports more than tripled in 1987, reaching \$109 million, and increased about a third in 1988.

The USSR was the leading market for Egypt's orange exports in 1988, buying 130,000 tons. The second major market was Saudi Arabia, a customer for 43,600 tons. Eastern Europe is also a major market, with East Germany, Czechoslovakia, and Poland major trade agreement buyers. The average value for exports of oranges during 1987-89 is estimated at \$130 million—double the 1984-86 average of \$70 million.

Strong domestic demand has limited exports of other citrus (tangerines and limes) to less than 3,000 tons annually.

Grapefruit is produced primarily for foreign tourists and for export. Grapefruit exports to the EC increased sharply in 1986 and accounted for a third of the harvest of 2,200 tons, but declined afterwards because of intense competition.

Fruit Juice and Pulp Exports Benefit from Packing Technology

Exports of mango juice tripled between 1982 and 1985, rising to about \$9.5 million. Use of high quality canning material added to widespread acceptance among consumers in Saudi Arabia and Kuwait, the leading export markets. Egypt is also exporting more fruit pulp to processors in Saudi Arabia, including guava juice in bulk containers. Egypt's ban on imports of fruits and nuts during the last 2 years caused Egypt to reduce exports of mango juice in order to ease domestic shortages.

Policy Constraints on Traditional Exports Promote Diversification

A number of factors account for Egypt's agricultural export diversification. A combination of strong domestic demand and government controls on exports of cotton and rice appears to have constrained exports of these traditional items. While public companies under the Ministry of Economy continue to control the exports of key agricultural commodities, including cotton and rice, cooperatives have been allowed to develop exports of potatoes and other items once restricted to public companies. Exports of tomatoes, broccoli, and other items considered too minor for government control in the early 1960's have been developed by foreign investors and Egyptians returning home with foreign exchange to invest.

Public companies were given control over agricultural exports in the early 1960's, when most exports were through trade agreements with the USSR and Eastern Europe. The Cotton Organization still manages the public sector companies engaged in cotton exports and the manufacture of textiles. Government agencies also continue to handle most exports of onions and garlic, which go primarily to the USSR and Eastern Europe through trade agreements.

In contrast, cooperatives handle most of the potato exports. Private firms handle most of the exports of tomatoes, melons, and broccoli, which were not important export items 25 years ago. These items often fetch good prices, especially during the spring when Egyptian produce has found a seasonal market niche. Profits have been reflected in dividends paid by cooperatives to producers providing supplies for export. Provision of incentive prices and bonus dividends through cooperative marketing has brought greater production and exports of potatoes, onions, and garlic in the last several years.

Exportable Surpluses of Cotton Decline

Declining exportable supplies of cotton have been another factor promoting export diversification. Raw cotton exports, consisting primarily of high-quality long staple cotton, trended downward in the late 1980's because of inadequate production and greater internal demand from Egyptian textile manufacturers. The quantity exported declined from 219,000 tons in 1983 to less than 75,000 tons in 1988, although a 60-percent increase in the average export price prevented a more severe slide in value. By late 1988, the Liverpool price for Giza 75, an Egyptian extra long staple variety, had increased to over \$4,000 per ton, helping to offset the declining volume of cotton exports.

The Government has also begun importing limited quantities of less expensive short-staple cotton for use by the domestic textile industry. This policy has allowed traditional exports of long staple cotton to continue, and textile exports to expand, despite lower cotton production. Recent hikes in farm prices of cotton have not yet brought about gains in cotton production.

Without stronger gains in production, Egypt may become a net importer of raw cotton in volume terms in the 1990's, although much higher prices for long staple exports will likely keep the value for exports well above the cost of imports. In addition, Egypt is also importing more cotton yarn and exporting more cotton fabrics and clothing, allowing textile export earnings to exceed \$1 billion in 1987.

Rice Exports Remain Sluggish

Rice exports rebounded sharply to about 105,000 tons in 1986, up from the low of 17,000 tons valued at \$7 million in 1985. Rice exports advanced further to 126,000 tons in 1987, but declined to about 108,000 tons in 1988 because of a 17-percent decline in production.

Despite some recent gains, Egypt's once large rice exports have also trended downward in recent years, and some rice imports have occurred simultaneously with exports. Reduction or elimination of rice exports in response to stagnant production and rising demand is viewed adversely by government planners and state trading firms. Per capita rice use in late 1988 was about a third below the 1980-84 average, and shortages of rice in 1985-88 were only partly overcome by ample wheat supplies. Proposals to import rice have usually been resisted, although Japan's donation of 10,000 tons of Thai rice and EC donations of about 13,000 tons were accepted in 1988.

In the case of rice, as in the case of cotton, sugar, and pulses, Egyptian policymakers have found it difficult to change from being an exporter to an importer because of an

elaborate system of state trading firms organized to handle exports. If exports of sugar, rice, or pulses are halted, the state trading firms that traditionally handle those exports are threatened. The result has been implementation of two-way trade, in which there are private sector imports of commodities alongside exports by public agencies.

Export Strategy Focuses on Three Market Areas

Egypt's agricultural export strategy focuses on expanding sales in three market areas. First, priority is given to sales in markets where payments are made in convertible currency, particularly Europe and the Middle East. Greater exports of new horticultural items to the EC have indicated that potential exists for diversification in the future. Despite strong competition from other suppliers for EC markets, duty concessions given Egypt mean excellent opportunities in the future. Sales of oranges, potatoes, canned vegetables, and specialty items to Saudi Arabia have increased, and further gains are anticipated.

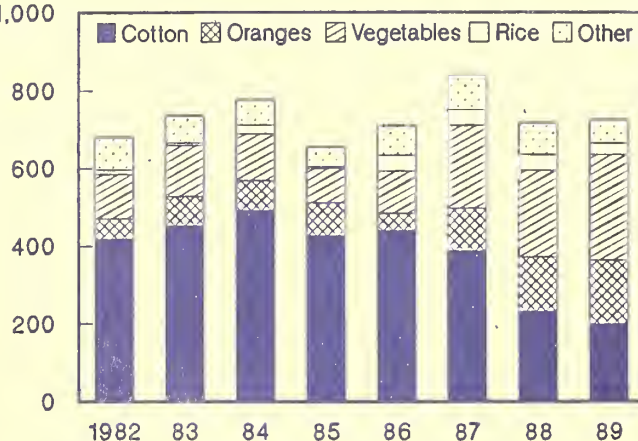
The second priority is to expand sales through trade arrangements with Asian countries, particularly China and Japan. The third priority is to expand sales through traditional trade agreements, including the recent protocol signed with the USSR. Trade agreements with the USSR, Eastern Europe, China, Sudan, and India allow Egypt to obtain many necessary commodities without payments in foreign exchange, unless two-way trade is out of balance. These agreements have benefited Egypt in expanding farm exports.

During 1982, the USSR was a significant market for textiles, oranges, onions, jasmine paste, shoes, soap, and alcoholic

Figure H-1

Egyptian Agricultural Exports

Million dollars
1,000



beverages. Egypt's total exports to the USSR fell in the late 1970's, largely because of the termination of cotton exports to the Soviet Union, but rebounded to about \$285 million in 1988. Egypt's construction boom has bolstered imports of Soviet forest products from \$5 million in 1980 to an average of over \$50 million during 1986-88.

At the same time, there has been a striking rebound in Egyptian exports of oranges to the USSR, indicating potential for boosting sales through trade agreements. Sudan has also become a much larger market for Egypt's exports of manufactures and some processed foods, while providing items Egypt needs to import, especially live animals, sesame, vegetable oils, and various tropical products.

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